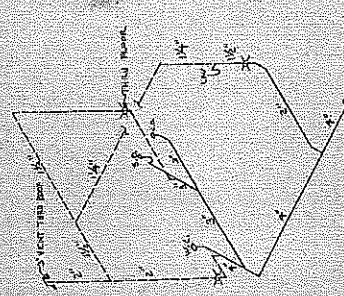
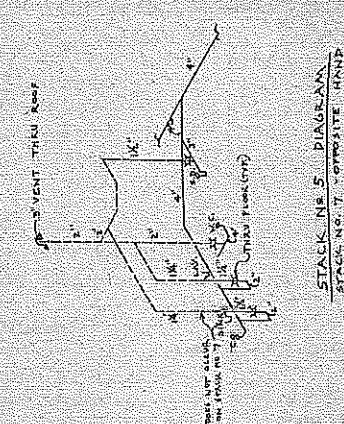
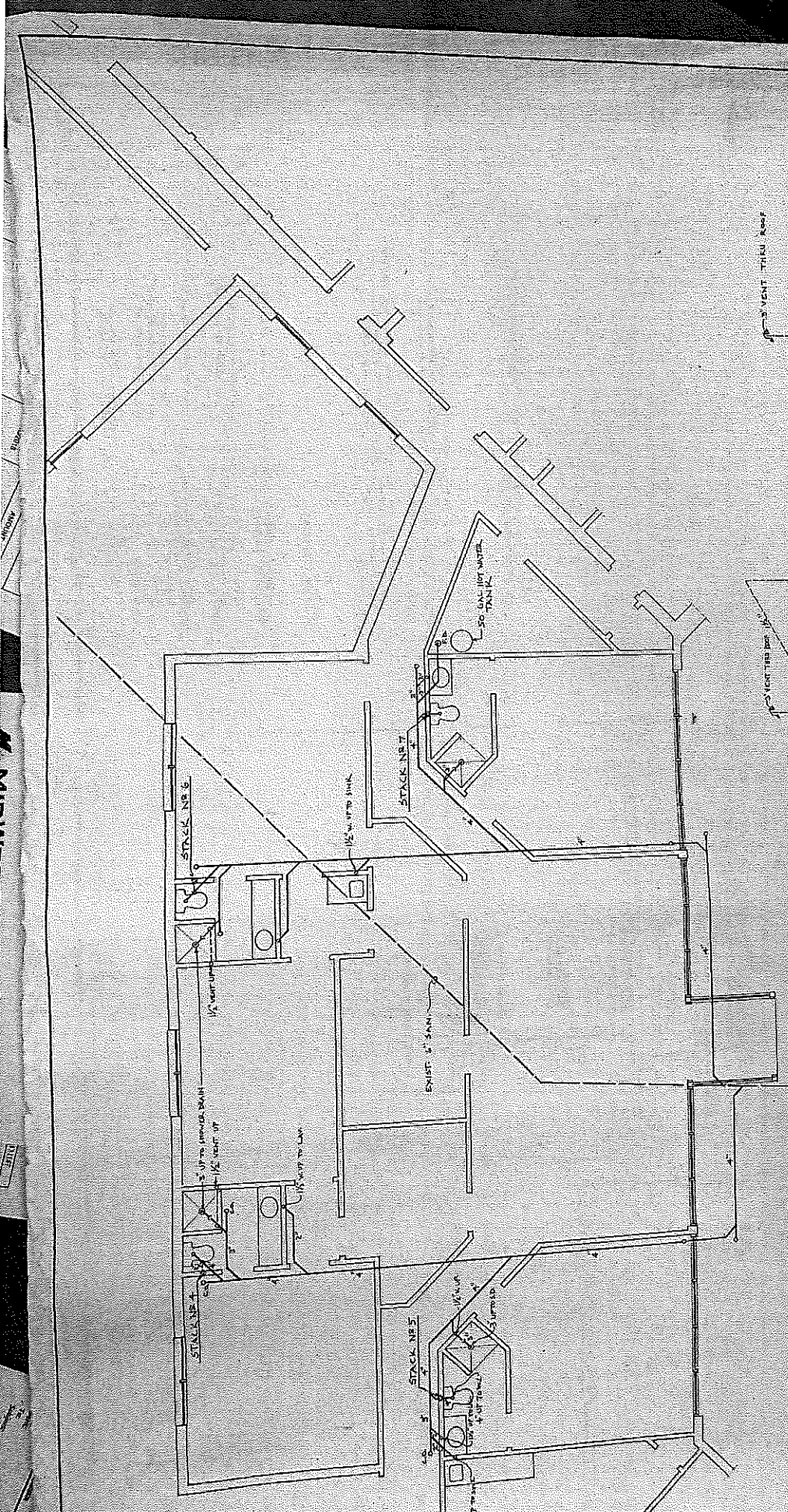
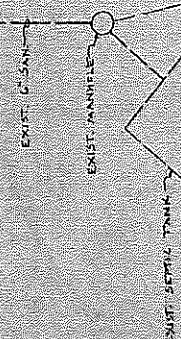

SECTION 9
APPENDIX

APPENDIX A

Record Drawings



PLUMBING PLAN - BUILDING 'B'
SCALE 1/4" = 1'-0"



MIDWEST OFFICE COMPLEX
 SHUSTER ASSOCIATES
 ARCHITECTS
 MANAGEMENT
 CONSULTANTS
 P.O. BOX 1007
 MENTOR, OHIO 44061
 PHONE (216) 885-8883

OFFICIAL SEAL OF THE STATE OF OHIO
 ARCHITECTS
 STATE OF OHIO
 No. 1007

13-2

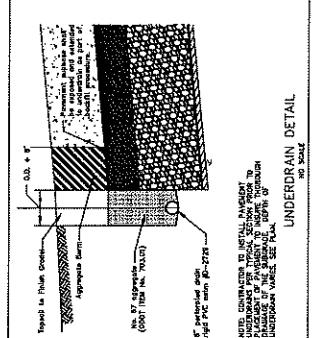
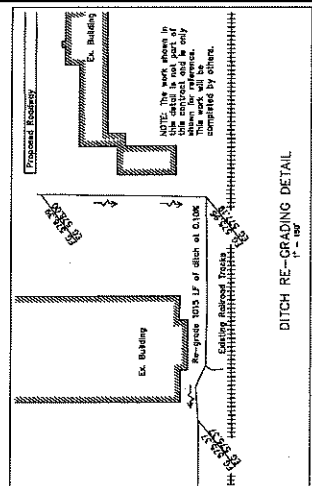
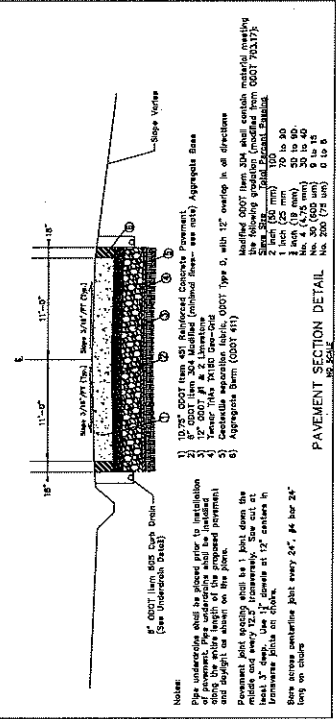
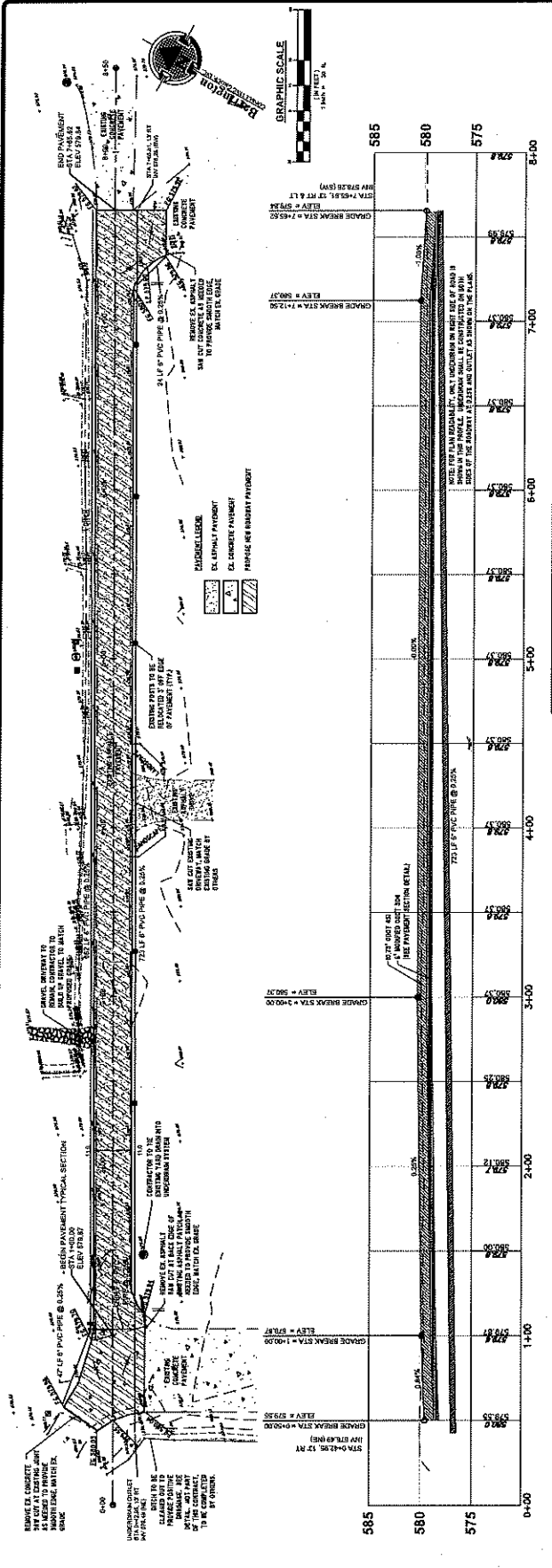
BY	
REVISIONS	

MIDWEST MATERIALS
MELISSA EVENMEIER
 3691 SHEPARD ROAD
 PERRY, OHIO 44081
 PH: 440-259-5200 / FAX: 440-259-5204

MIDWEST MATERIALS
CONSTRUCTING GROUP, INC.
 1914 TYLER BLVD., MENTOR, OHIO 44060
 PHONE 440.205.1260 FAX 440.205.1262

PAVEMENT REPLACEMENT
 MIDWEST MATERIALS STEEL SERVICE CENTER
 PERRY, OHIO 44081
SITE PLAN - OPTION B

DATE: **AUGUST 28, 2014**
 PROJECT: **14-001-01-05**
 SHEET: **111**
 TOTAL SHEETS: **111**



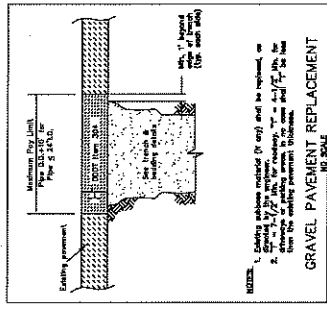
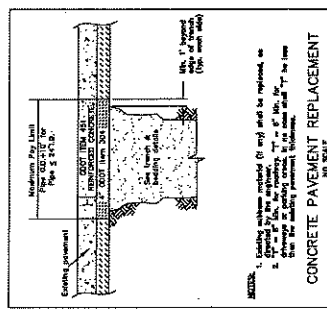
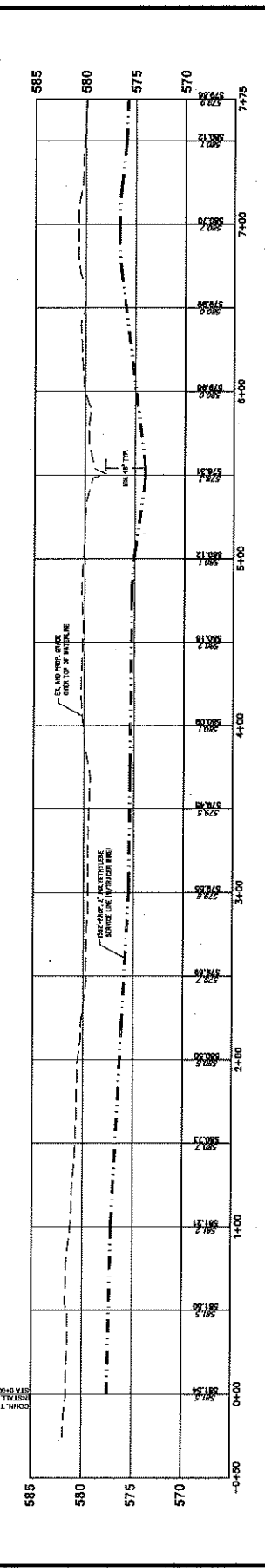
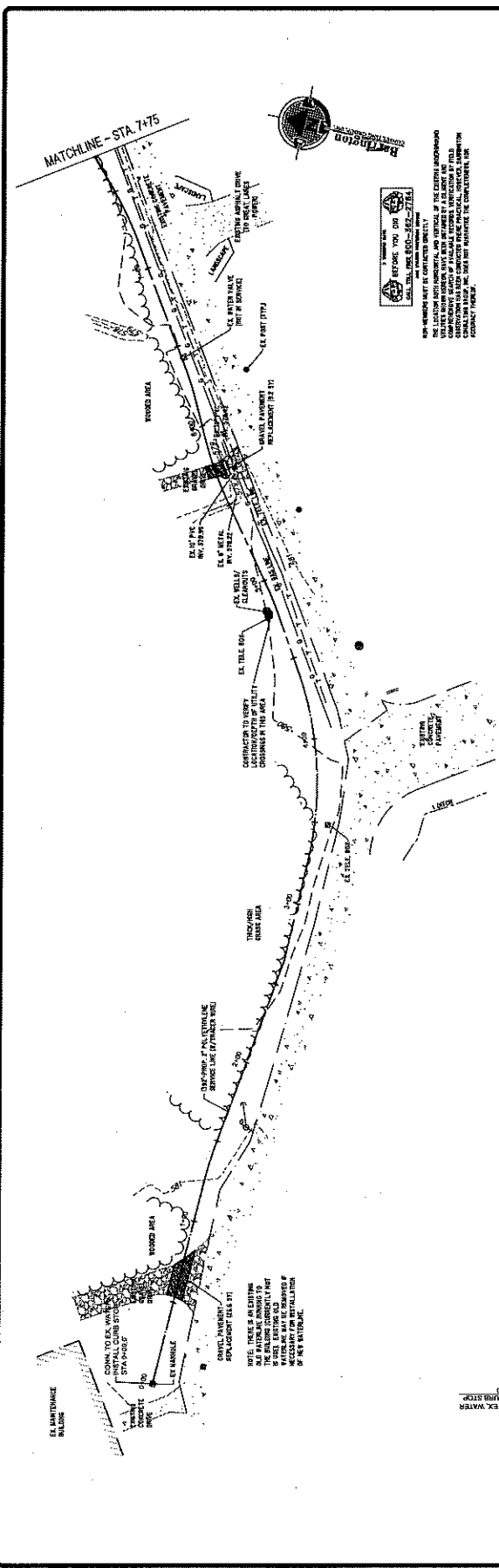
GENERAL
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE, AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE, AND FEDERAL AGENCIES.

TRAFFIC CONTROL
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL DURING CONSTRUCTION.

MATERIAL SPECIFICATIONS
 ALL MATERIALS SHALL BE SPECIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL, STATE, AND FEDERAL AGENCIES.

ROADWAY SUBGRADE
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBGRADE OF THE ROADWAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBGRADE OF THE ROADWAY.

UNDERDRAIN DETAIL
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE UNDERDRAIN DETAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE UNDERDRAIN DETAIL.



GENERAL NOTES

THE LAKE COUNTY DEPARTMENT OF UTILITIES WATED SERVICE CONNECTION PROCEDURES SHALL GOVERN THIS PROJECT.

ALL WORK CONTINGENT UPON THIS CONTRACT SHALL COMPLY WITH THE U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT.

STATIONING SHOWN HEREON IS ALONG THE CENTERLINE OF THE PROPOSED WATERLINE.

ALL EXISTING UTILITIES SHOWN HEREON ARE FROM ACTUAL FIELD SURVEYS BY BARTINGTON CONSULTING GROUP, INC.

HAZARD ROAD

ALL HAZARD ROAD SHALL REMAIN IN GOOD DRIVING CONDITION. STREET CLEANING SHALL BE PERFORMED AS NECESSARY TO MAINTAIN THIS CONDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS CLEAR OF ALL DEBRIS ASSOCIATED WITH THE IMPROVEMENTS.

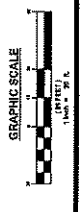
TRAFFIC CONTROL

TRAFFIC CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS CLEAR OF ALL DEBRIS ASSOCIATED WITH THE IMPROVEMENTS. ACCESS TO GREAT LAKES FORD PARKWAY SHALL BE MAINTAINED AT ALL TIMES.

MATERIAL SPECIFICATIONS

MATERIAL SPECIFICATIONS CALLED FOR ON THE PLANS REPRESENT THE MINIMUM REQUIRED FOR EACH APPLICATION. THE CONTRACTOR MAY SUBMIT TO SUBSTITUTES ALTERNATIVE MATERIALS, ANY SUCH SUBSTITUTES SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LAKE COUNTY DEPARTMENT OF UTILITIES.

2" POLYETHYLENE SERVICE LINE (PE) SHALL BE 40 PER INCH AND MUST BE COVERED WITH ELASTIC GLEUP JOINTS AND NOT PERMITTED PLASTIC FITTINGS SHALL BE COMPRISED WITH THE WATERLINE MUST BE COVERED WITH 18\"/>



REV	DATE	BY	DESCRIPTION

2" WATER SERVICE LINE

MIDWEST MATERIALS STEEL SERVICE CENTER
3695 SHEPARD ROAD, PERRY, OHIO

SITE PLAN

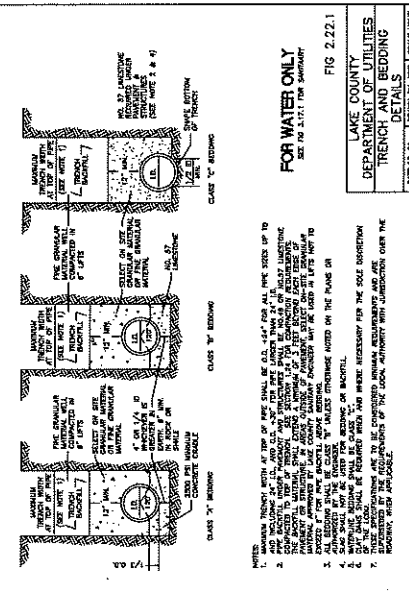
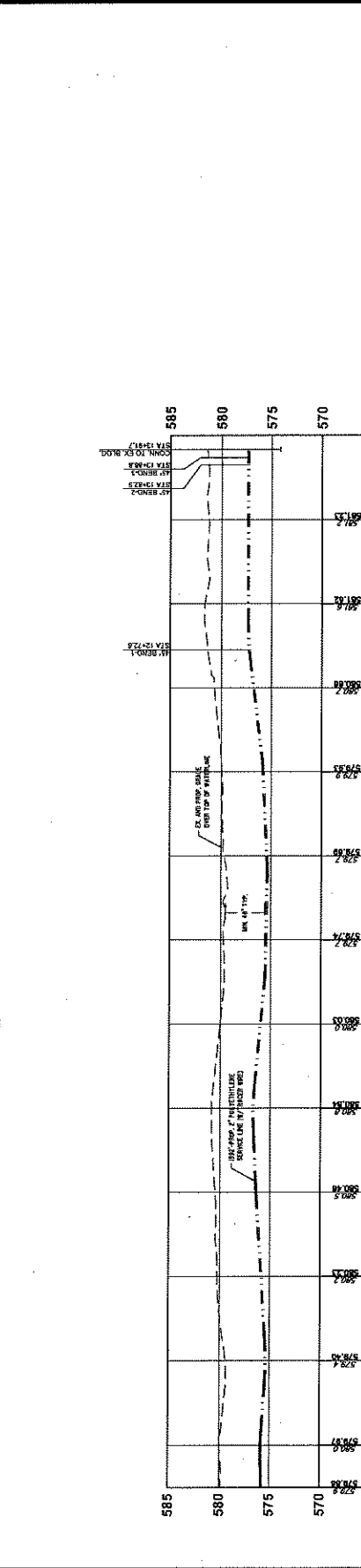
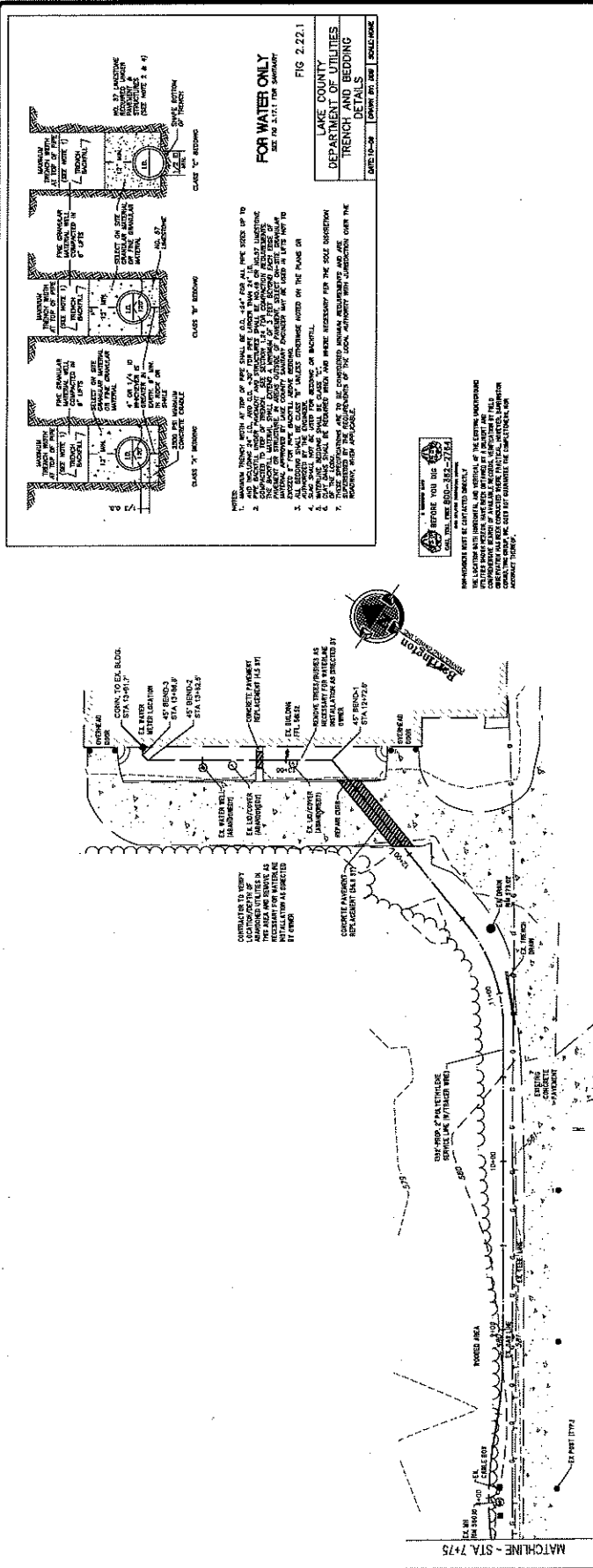
MIDWEST MATERIALS
MELISSA EVENHUEMER
P.O. BOX 345
PERRY, OHIO 44081
PH: 440-259-5200 / FAX: 440-259-5204

Bartington
CONSULTING GROUP, INC.
1114 TYLER BLVD., KENTON, OHIO 44066
PHONE 440.925.1200 FAX 440.205.1202
WWW.BARTINGTONCO.COM

712

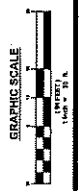
SHEET

DATE: AUGUST 6, 2015
DRAWN BY: [Signature]
CHECKED BY: [Signature]
SCALE: AS SHOWN



- NOTES:**
1. MAXIMUM TRENCH WIDTH AT TOP OF PIPE SHALL BE 42" FOR ALL PIPE SIZES UP TO 18" IN DIAMETER. TRENCHES WIDER THAN 42" SHALL BE CONSIDERED AS SHALLOW FOUNDATIONS AND SHALL BE DESIGNED AND CONSTRUCTED AS SUCH.
 2. PIPE SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.
 3. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.
 4. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.
 5. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.
 6. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.
 7. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.
 8. ALL TRENCHES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.

MANHOLE DEPTH SHALL BE 4'-0" FOR ALL MANHOLES UNLESS OTHERWISE NOTED ON THE PLANS OR SPECIFICATIONS. MANHOLES SHALL BE CONSTRUCTED WITH 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL. ALL MANHOLES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL. ALL MANHOLES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL. ALL MANHOLES SHALL BE PROTECTED BY 12" MINIMUM THICKNESS OF CONCRETE OR 18" MINIMUM THICKNESS OF CORRUGATED METAL.





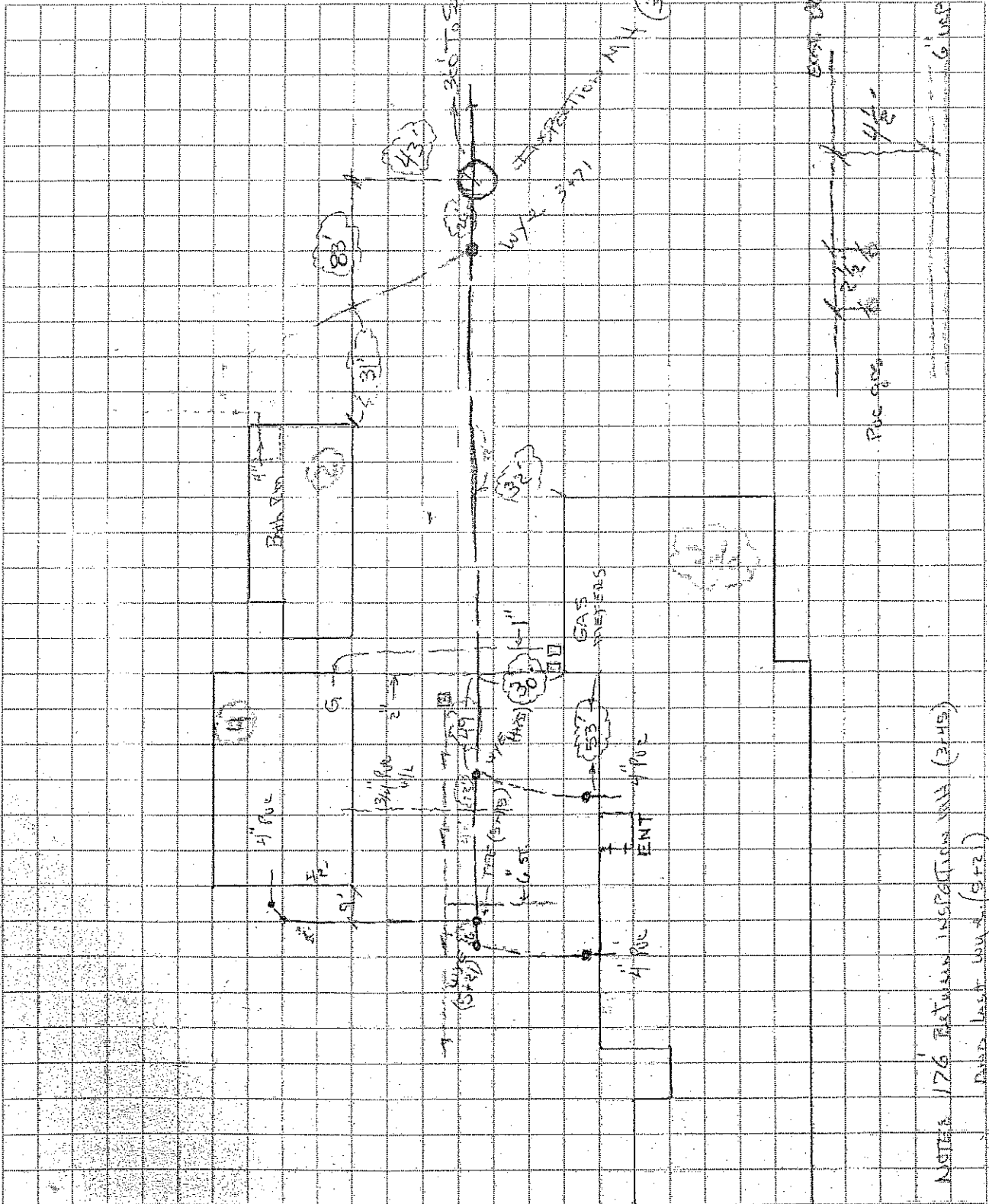
Job: PM-10338

STR EXC.

Lake County Department of Utilities
Engineering Division
105 Main Street • Painesville, Ohio 44077

Date: 10-27-13

Scale:



APPENDIX B

NS Occupancy Agreement



AECOM
1700 Market Street
Suite 1600
Philadelphia, PA 19103
www.aecom.com

215 735 0832 tel
215 735 0883 fax

July 10, 2018

Gerald Smith
Senior Designer
CT Consultants, Inc.
8150 Sterling Court
Mentor, Ohio 44060

Subject: Perry Village, Lake County, Ohio
Milepost PA-0.12 - PA-0.39, Fairport Branch, Pittsburgh Division
Lat. N 41.755316 - N 41.754712, Long. W 81.141536 - W 81.146554

Norfolk Southern Activity No. 1257703

Proposed installation of a 1441-foot underground parallel occupancy of a 2-inch HDPE sanitary sewer pipeline.

Dear Mr. Smith:

Attached is the fully executed Standard Pipe License Agreement dated July 2, 2018 between Norfolk Southern Railway Company and Perry Joint Economic Development District (JEDD) covering the above referenced project 170415.

This letter acknowledges receipt of your payment in the amount of \$24,780.00, which covers the one-time fee of \$23,780.00 and the Railroad Protective Insurance Fee of \$1,000.00. Your Certificate of Liability Insurance has been reviewed by the Railway's Risk Manager and is acceptable. We note the expiration date of the certificate is June 21, 2019. If your construction will occur after the expiration date, you must furnish a renewal certificate to Norfolk Southern's Risk Manager prior to scheduling construction or contacting the Railway for Flagging.

Prior to start of work on Railway right of way, you are required to contact the following:

For Scheduling Flagging and Inspection

Ben Taggart of NS's Pittsburgh Division Engineer's office, (412) 893-7256/7255

For Railway Signal Identification

Phillip Kaehn, Communication and Signal General Inspector, Phillip.Kaehn@nscorp.com

Once contacted, the Division Engineer requires 72 hours to review the need for and availability of flagmen for this project and will advise you of the cost of said flagmen. No work is permitted on Railway right of way without a flagman or the Division Engineer's agreement to waive the flag protection requirement. Entry onto Railway property without the Division Engineer's prior approval is considered trespassing.

Thank you for your cooperation.

Very truly yours,

Alicia Plummer
Contract Administrator
215-789-2138
Alicia.Plummer@aecom.com

CC: Archives / Lilburn

THIS AGREEMENT, dated as of the 2nd day of July, 2018 is made and entered into by and between

NORFOLK SOUTHERN RAILWAY COMPANY, a Virginia corporation, whose mailing address is Three Commercial Place, Norfolk, Virginia 23510 (hereinafter called "Railway"); and

PERRY JOINT ECONOMIC DEVELOPMENT DISTRICT (JEDD), a Ohio political subdivision, whose mailing address is 3740 Center Road, Perry, Ohio 44801 (hereinafter called "Licensee").

WITNESSETH

WHEREAS, Licensee proposes to install, maintain, operate and remove a 2-inch HDPE sanitary sewer pipeline (hereinafter called the "Facilities") located in, under and along the right-of-way or property and any tracks of Railway, at or near:

- Milepost PA-0.16 - PA-0.44, Fairport Branch
- Latitude N 41.755316 - N 41.754963, Longitude W 81.141536 - W 81.144456
- Perry Village, Lake County, Ohio
- Valuation Section 3, Map 33, Parcels 14, 15, and 16

the same to be located in accordance with and limited to the installation shown on print of drawings marked Sheets 1-6 of 7, dated February 22, 2018 and Pipe Data Sheet attached hereto and made a part hereof; and

WHEREAS, Licensee desires a license to use such right-of-way or property of Railway for the installation, construction, maintenance, operation and removal of the Facilities.

NOW, THEREFORE, for and in consideration of the premises, the payment of a non-refundable, non-assignable one-time fee in the amount of TWENTY-FOUR THOUSAND SEVEN HUNDRED EIGHTY AND 00/100 DOLLARS (\$24,780.00) (hereinafter called the "Fee") to cover the Risk Financing Fee (as hereinafter defined) in the amount of \$1,000.00 and a one-time occupancy fee in the amount of \$23,780.00 and the covenants hereinafter set forth, Railway hereby permits and grants to Licensee, insofar as Railway has the right to do so, without warranty and subject to all encumbrances, covenants and easements to which Railway's title may be subject, the right to use and occupy so much of Railway's right-of-way or property as may be necessary for the installation, construction, maintenance, operation and removal of the Facilities (said right-of-way or property of Railway being hereinafter collectively called the "Premises"), upon the following terms and conditions:

1. Use and Condition of the Premises. The Premises shall be used by Licensee only for the installation, construction, maintenance, operation and removal of the Facilities and for no other purpose without the prior written consent of Railway, which consent may be withheld by Railway in its sole discretion. Licensee accepts the Premises in their current "as is" condition, as

suited for the installation and operation of the Facilities, and without the benefit of any improvements to be constructed by Railway.

2. Installation of the Facilities; Railway Support. Licensee shall, at its expense, install, construct, maintain and operate the Facilities on a lien-free basis and in such a manner as will not interfere with the operations of Railway, or endanger persons or property of Railway. Such installation, construction, maintenance and operation of the Facilities shall be in accordance with (a) the plans and specifications (if any) shown on the prints attached hereto and any other specifications prescribed by Railway, (b) applicable laws, regulations, ordinances and other requirements of federal, state and local governmental authorities, and (c) applicable specifications adopted by the American Railway Engineering and Maintenance-of-Way Association, when not in conflict with the applicable plans, specifications, laws, regulations, ordinances or requirements mentioned in (a) and (b), above. All underground pipes must have secondary pipe containment if the material flowing through the pipeline poses a safety or environmental hazard. Any change to the character, capacity or use of the Facilities shall require execution of a new agreement.

3. Railway Support. Railway shall, at Railway's option, furnish, at the sole expense of Licensee, labor and materials necessary, in Railway's sole judgment, to support its tracks and to protect its traffic (including, without limitation, flagging) during the installation, maintenance, repair, renewal or removal of the Facilities.

4. Electronic Interference. Licensee will provide Railway with no less than sixty (60) days advance written notice prior to the installation and operation of cathodic protection in order that tests may be conducted on Railway's signal, communications and other electronic systems (hereinafter collectively called the "Electronic Systems") for possible interference. If the Facilities cause degradation of the Electronic Systems, Licensee, at its expense, will either relocate the cathodic protection or modify the Facilities to the satisfaction of Railway so as to eliminate such degradation. Such modifications may include, without limiting the generality of the foregoing, providing additional shielding, reactance or other corrective measures deemed necessary by Railway. The provisions of this paragraph 4 shall apply to the Electronic Systems existing as of the date of this Agreement and to any Electronic Systems that Railway may install in the future.

5. Corrective Measures. If Licensee fails to take any corrective measures requested by Railway in a timely manner, or if an emergency situation is presented which, in Railway's judgment, requires immediate repairs to the Facilities, Railway, at Licensee's expense, may undertake such corrective measures or repairs as it deems necessary or desirable.

6. Railway Changes. If Railway shall make any changes, alterations or additions to the line, grade, tracks, structures, roadbed, installations, right-of-way or works of Railway, or to the character, height or alignment of the Electronic Systems, at or near the Facilities, Licensee shall, upon thirty (30) days prior written notice from Railway and at its sole expense, make such changes in the location and character of the Facilities as, in the opinion of the chief engineering officer of Railway, shall be necessary or appropriate to accommodate any construction, improvements, alterations, changes or additions of Railway.

7. Assumption of Risk. Unless caused solely by the negligence of Railway or caused solely by the willful misconduct of Railway, Licensee hereby assumes all risk of damage to the Facilities and Licensee's other property relating to its use and occupation of the Premises or business carried on the Premises and any defects to the Premises; and Licensee hereby indemnifies Railway, its officers, directors, agents and employees from and against any liability for such damage.

8. Entry Upon Premises. Prior to commencement of any work to be performed on or about the Premises, Licensee shall notify the appropriate Division Engineer for the scheduling of protection and inspection. Within seventy-two (72) hours after the Division Engineer's actual receipt of such notification, the Division Engineer shall review the necessity and availability of flagmen for the proposed work and advise Licensee of such matters and the estimated cost therefor. No work shall be permitted on or about the Premises without the presence of Railway's flagman or the Division Engineer's waiver of the requirement for flag protection. Entry on or about the Premises or any other Railway right-of-way without the Division Engineer's prior approval shall be deemed trespassing. Licensee agrees to pay Railway, within thirty (30) days after delivery of an invoice therefor, for any protection and inspection costs incurred by Railway, in Railway's sole judgment, during any such entry.

9. Liens; Taxes. Licensee will not permit any mechanic's liens or other liens to be placed upon the Premises, and nothing in this Agreement shall be construed as constituting the consent or request of Railway, express or implied, to any person for the performance of any labor or the furnishing of any materials to the Premises, nor as giving Licensee any right, power or authority to contract for or permit the rendering of any services or the furnishing of any materials that could give rise to any mechanic's liens or other liens against the Premises. In addition, Licensee shall be liable for all taxes levied or assessed against the Facilities and any other equipment or other property placed by Licensee within the Premises. In the event that any such lien shall attach to the Premises or Licensee shall fail to pay such taxes, then, in addition to any other right or remedy available to Railway, Railway may, but shall not be obligated to, discharge the same. Any amount paid by Railway for any of the aforesaid purposes, together with related court costs, attorneys' fees, fines and penalties, shall be paid by Licensee to Railway within ten (10) days after Railway's demand therefor.

10. Indemnification. Licensee hereby agrees to indemnify and save harmless Railway, its officers, directors, agents and employees, from and against any and all liabilities, claims, losses, damages, expenses (including attorneys' fees) or costs for personal injuries (including death) and property damage to whomsoever or whatsoever occurring (hereinafter collectively called "Losses") that arise in any manner from (a) the installation, construction, maintenance, operation, presence or removal of, or the failure to properly install, construct, maintain, operate or remove, the Facilities, or (b) any act, omission or neglect of Licensee, its agents, servants, employees or contractors in connection therewith, unless caused solely by the negligence of Railway or caused solely by the willful misconduct of Railway.

11. Insurance.

(a) Without limiting in any manner the liability and obligations assumed by Licensee under any other provision of this Agreement, and as additional protection to Railway, Licensee shall, at its expense, pay the Risk Financing Fee set forth in subparagraph (i) below and shall procure and maintain with insurance companies satisfactory to Railway, the insurance policies described in subparagraphs (ii) and (iii).

(i) Upon execution of this Agreement, Licensee shall pay Railway a risk financing fee of \$1,000 per installation (herein called the "Risk Financing Fee") to provide Railroad Protective Liability Insurance or such supplemental insurance (which may be self-insurance) as Railway, in its sole discretion, deems to be necessary or appropriate.

(ii) Prior to commencement of installation or maintenance of the Facilities or entry on Railway's property, Licensee, and its contractor if it employs one, shall procure and maintain for the course of said installation and maintenance, a general liability insurance policy naming Railway as an additional insured, and containing products and completed operations and contractual liability coverage, with a combined single limit of not less than \$1,000,000 for each occurrence.

(iii) Prior to commencement of any subsequent maintenance of the Facility during the term of this Agreement, unless Railway elects to make available and Licensee pays the then current risk financing fee for each affected installation, Licensee, or its contractor if it employs one, shall furnish Railway with an original Railroad Protective Liability Insurance Policy naming Railway as the named insured and having a limit of not less than a combined single limit of \$2,000,000 each occurrence and \$6,000,000 aggregate. Such policy shall be written using Insurance Services Offices Form Numbers CG 00 35 01 10 01.

(b) All insurance required under preceding subsection (a) shall be underwritten by insurers and be of such form and content as may be acceptable to Railway. Prior to commencement of installation or maintenance of the Facilities or any entry on Railway's property, Licensee, or its contractor if it employs one, shall: furnish to Railway's Risk Manager, Three Commercial Place, Norfolk, Virginia 23510-2191 (or such other representative and/or address as subsequently given by Railway to Licensee in writing), for approval, the original policy described in subsection (a)(iii) and a certificate of insurance evidencing the existence of a policy with the coverage described in subsection (a)(ii).

12. Environmental Matters. Licensee assumes all responsibility for any environmental obligations imposed under applicable laws, regulations, ordinances or other requirements of federal, state and local governmental authorities relating to (a) the installation, construction, maintenance, operation or removal of the Facilities, including notification and reporting of any releases, and (b) any contamination of any property, water, air or groundwater arising or resulting, in whole or in part, from Licensee's operation or use of the Premises pursuant to this Agreement. In addition, Licensee shall obtain any necessary permits to install, construct, maintain, operate or remove the Facilities. Licensee agrees to indemnify and hold harmless Railway from and against any and all fines, penalties, demands or other Losses

(including attorneys' fees) incurred by Railway or claimed by any person, company or governmental entity relating to (a) any contamination of any property, water, air or groundwater due to the use or presence of the Facilities on the Premises, (b) Licensee's violation of any laws, regulations or other requirements of federal, state or local governmental authorities in connection with the use or presence of the Facilities on the Premises or (c) any violation of Licensee's obligations imposed under this paragraph. Without limitation, this indemnity provision shall extend to any cleanup and investigative costs relating to any contamination of the Premises arising or resulting from, in whole or in part, Licensee's use of the Facilities or any other activities by or on behalf of Licensee occurring on or about the Premises. Licensee further agrees not to dispose of any trash, debris or wastes, including hazardous waste, on the Premises and will not conduct any activities on the Premises which would require a hazardous waste treatment, storage or disposal permit.

13. Assignments and Other Transfers.

(a) Licensee shall not assign, transfer, sell, mortgage, encumber, sublease or otherwise convey (whether voluntarily, involuntarily or by operation of law) this Agreement or any interest therein, nor license, mortgage, encumber or otherwise grant to any other person or entity (whether voluntarily, involuntarily or by operation of law) any right or privilege in or to the Premises (or any interest therein), in whole or in part, without the prior written consent of Railway, which consent may be withheld by Railway in its sole discretion. Any such assignment or other transfer made without Railway's prior written consent shall be null and void and, at Railway's option, shall constitute an immediate default of this Agreement. Notwithstanding the foregoing, upon prior written notice to Railway, Licensee may assign this Agreement to a parent, a wholly-owned subsidiary of Licensee or a wholly-owned subsidiary of Licensee's parent without Railway's consent; provided, however, that no such assignment shall relieve Licensee of its obligations under this Agreement.

(b) Railway shall have the right to transfer and assign, in whole or in part, all its rights and obligations hereunder and in or to the Premises. From and after the effective date of any such assignment or transfer, Railway shall be released from any further obligations hereunder; and Licensee shall look solely to such successor-in-interest of Railway for the performance of the obligations of "Railway" hereunder.

14. Meaning of "Railway". The word "Railway" as used herein shall include any other company whose property at the aforesaid location may be leased or operated by Railway. Said term also shall include Railway's officers, directors, agents and employees, and any parent company, subsidiary or affiliate of Railway and their respective officers, directors, agents and employees.

15. Default; Remedies.

(a) The following events shall be deemed to be events of default by Licensee under this Agreement:

(i) Licensee shall fail to pay the Fee or any other sum of money due hereunder and such failure shall continue for a period of ten (10) days after the due date thereof;

(ii) Licensee shall fail to comply with any provision of this Agreement not requiring the payment of money, all of which terms, provisions and covenants shall be deemed material, and such failure shall continue for a period of thirty (30) days after written notice of such default is delivered to Licensee;

(iii) Licensee shall become insolvent or unable to pay its debts as they become due, or Licensee notifies Railway that it anticipates either condition;

(iv) Licensee takes any action to, or notifies Railway that Licensee intends to file a petition under any section or chapter of the United States Bankruptcy Code, as amended from time to time, or under any similar law or statute of the United States or any State thereof; or a petition shall be filed against Licensee under any such statute; or

(v) a receiver or trustee shall be appointed for Licensee's license interest hereunder or for all or a substantial part of the assets of Licensee, and such receiver or trustee is not dismissed within sixty (60) days of the appointment.

(b) Upon the occurrence of any event or events of default by Licensee, whether enumerated in this paragraph 15 or not, Railway shall have the option to pursue any remedies available to it at law or in equity without any additional notices to Licensee. Railway's remedies shall include, but not be limited to, the following: (i) termination of this Agreement, in which event Licensee shall immediately surrender the Premises to Railway; (ii) entry into or upon the Premises to do whatever Licensee is obligated to do under the terms of this License, in which event Licensee shall reimburse Railway on demand for any expenses which Railway may incur in effecting compliance with Licensee's obligations under this License, but without rendering Railway liable for any damages resulting to Licensee or the Facilities from such action; and (iii) pursuit of all other remedies available to Railway at law or in equity, including, without limitation, injunctive relief of all varieties.

16. Railway Termination Right. Notwithstanding anything to the contrary in this Agreement, Railway shall have the right to terminate this Agreement and the rights granted hereunder, after delivering to Licensee written notice of such termination no less than sixty (60) days prior to the effective date thereof, upon the occurrence of any one or more of the following events:

(a) If Licensee shall discontinue the use or operations of the Facilities; or

(b) If Railway shall be required by any governmental authority having jurisdiction over the Premises to remove, relocate, reconstruct or discontinue operation of its railroad on or about the Premises; or

(c) If Railway, in the good faith judgment of its Superintendent, shall require a change in the location or elevation of its railroad on or about the location of the Facilities or the Premises that might effectively prohibit the use or operation of the Facilities; or

(d) If Railway, in the good faith judgment of its Superintendent, determines that the maintenance or use of the Facilities unduly interferes with the operation and maintenance of the facilities of Railway, or with the present or future use of such property by Railway, its lessees, affiliates, successors or assigns, for their respective purposes.

17. Condemnation. If the Premises or any portion thereof shall be taken or condemned in whole or in part for public purposes, or sold in lieu of condemnation, then this Agreement and the rights granted to Licensee hereunder shall, at the sole option of Railway, forthwith cease and terminate. All compensation awarded for any taking (or sale proceeds in lieu thereof) shall be the property of Railway, and Licensee shall have no claim thereto, the same being hereby expressly waived by Licensee.

18. Removal of Facilities; Survival. The Facilities are and shall remain the personal property of Licensee. Upon the expiration or termination of this Agreement, Licensee shall remove the Facilities from the Premises within thirty (30) days after the effective date thereof. In performing such removal, unless otherwise directed by Railway, Licensee shall restore the Premises to the same condition as existed prior to the installation or placement of Facilities, reasonable wear and tear excepted. In the event Licensee shall fail to so remove the Facilities or restore the Premises, the Facilities shall be deemed to have been abandoned by Licensee, and the same shall become the property of Railway for Railway to use, remove, destroy or otherwise dispose of at its discretion and without responsibility for accounting to Licensee therefor; provided, however, in the event Railway elects to remove the Facilities, Railway, in addition to any other legal remedy it may have, shall have the right to recover from Licensee all costs incurred in connection with such removal and the restoration of the Premises. Notwithstanding anything to the contrary contained in this Agreement, the expiration or termination of this Agreement, whether by lapse of time or otherwise, shall not relieve Licensee from Licensee's obligations accruing prior to the expiration or termination date, and such obligations shall survive any such expiration or other termination of this Agreement.

19. Entire Agreement. This Agreement contains the entire agreement of Railway and Licensee and supersedes any prior understanding or agreement between Railway and Licensee respecting the subject matter hereof; and no representations, warranties, inducements, promises or agreements, oral or otherwise, between the parties not embodied in this Agreement shall be of any force or effect.

20. Attorneys' Fees. If Railway should bring any action under this Agreement, or consult or place the Agreement or any amount payable by Licensee hereunder, with an attorney concerning or for the enforcement of any of Railway's rights hereunder, then Licensee agrees in each and any such case to pay to Railway all costs, including but not limited to court costs and attorneys' fees, incurred in connection therewith.

21. Severability. If any clause or provision of this Agreement is illegal, invalid or unenforceable under present or future laws effective during the term of this Agreement, then and in that event, it is the intention of the parties hereto that the remainder of this Agreement shall not be affected thereby; and it is also the intention of the parties to this Agreement that in lieu of each clause or provision of this Agreement that is illegal, invalid or unenforceable, there be added as a part of this Agreement a clause or provision as similar in terms to such illegal, invalid or unenforceable clause or provision as may be possible and be legal, valid and enforceable.

22. Modifications; Waiver; Successors and Assigns. This Agreement may not be altered, changed or amended, except by instrument in writing signed by both parties hereto. No provision of this Agreement shall be deemed to have been waived by Railway unless such waiver shall be in a writing signed by Railway and addressed to Licensee, nor shall any custom or practice that may evolve between the parties in the administration of the terms hereof be construed to waive or lessen the right of Railway to insist upon the performance by Licensee in strict accordance with the terms hereof. The terms and conditions contained in this Agreement shall apply to, inure to the benefit of, and be binding upon the parties hereto, and upon their respective successors in interest and legal representatives, except as otherwise herein expressly provided. If there shall be more than one Licensee, the obligations hereunder imposed upon Licensee shall be joint and several.

23. Notice. Any and all other notices, demands or requests by or from Railway to Licensee, or Licensee to Railway, shall be in writing and shall be sent by (a) postage paid, certified mail, return receipt requested, or (b) a reputable national overnight courier service with receipt therefor, or (c) personal delivery, and addressed in each case as follows:

If to Railway:
c/o Norfolk Southern Corporation
1200 Peachtree Street, NE - 12th Floor
Atlanta, Georgia 30309-3504
Attention: Director Real Estate

If to Licensee:
Perry Joint Economic Development District (JEDD)
3740 Center Road
Perry, Ohio 44801
Attention: Administrator

Either party may, by notice in writing, direct that future notices or demands be sent to a different address. All notices hereunder shall be deemed given upon receipt (or, if rejected, upon rejection).

24. Miscellaneous. All exhibits, attachments, riders and addenda referred to in this License are incorporated into this Agreement and made a part hereof for all intents and purposes. Time is of the essence with regard to each provision of this Agreement. This Agreement shall be

construed and interpreted in accordance with and governed by the laws of the State in which the Premises are located. Each covenant of Railway and Licensee under this Agreement is independent of each other covenant under this Agreement. No default in performance of any covenant by a party shall excuse the other party from the performance of any other covenant. The provisions of Paragraphs 7, 9, 10, 12 and 18 shall survive the expiration or earlier termination of this Agreement.

25. Limitations of Grant. Licensee acknowledges that the license granted hereunder is a quitclaim grant, made without covenants, representations or warranties with respect to Railway's (a) right to make the grant, (b) title in the Premises, or (c) right to use or make available to others the Premises for the purposes contemplated herein. Railway is the owner and/or holder of the Premises subject to the terms and limitations under which it is owned or held, including without limitation conditions, covenants, restrictions, easements (including any pre-existing fiber optic easements or licenses), encroachments, leases, licenses, permits, mortgages, indentures, reversionary interests, fee interests, zoning restrictions and other burdens and limitations, of record and not of record, and to rights of tenants and licensees in possession, and Licensee agrees that the rights licensed hereunder are subject and subordinate to each and all of the foregoing. Licensee accepts this grant knowing that others may claim that Railway has no right to make it, and Licensee agrees to release, hold harmless and indemnify (and, at Railway's election, defend, at Licensee's sole expense, with counsel approved by Railway) Railway, its affiliated companies, and its and their respective officers, directors, agents and employees, from and against any detriments to, or liabilities of, any type or nature arising from such claims, including punitive damages and any forfeitures declared or occurring as a result of this grant.

26. Limitations Upon Damages. Notwithstanding any other provision of this Agreement, Railway shall not be liable for breach of this Agreement or under this Agreement for any consequential, incidental, exemplary, punitive, special, business damages or lost profits, as well as any claims for death, personal injury, and property loss and damage which occurs by reason of, or arises out of, or is incidental to the interruption in or usage of the Facilities placed upon or about the Premises by Licensee, including without limitation any damages under such claims that might be considered consequential, incidental, exemplary, punitive, special, business damages or lost profits.

27. The Licensee, with respect to the indemnification provisions contained in this Agreement, hereby expressly waives any immunity granted or afforded Licensee pursuant to Section 35, Article II of the Ohio Constitution and Section 4123.74 of the Ohio Revised Code.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate, each part being an original, as of the date first above written.

Witness:

**NORFOLK SOUTHERN RAILWAY
COMPANY**

Keyna Halloway
As to Railway

By: Malcolm G. Roof
Real Estate Manager

Witness:

**PERRY JOINT ECONOMIC
DEVELOPMENT DISTRICT (JEDD)**

Karen J. Gurdy
As to Licensee

By: [Signature]
Title: Chairman

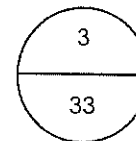
Activity Number 1257703
JSM: March 5, 2018
File No. 1603319v1

PIPE DATA SHEET

	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED	Sanitary wastewater & sewage	N/A
MAX. ALLOWABLE OPERATING PRESSURE	200 psi	N/A
NOMINAL SIZE OF PIPE	2"	N/A
OUTSIDE DIAMETER	2.375"	N/A
INSIDE DIAMETER	1.913"	N/A
WALL THICKNESS	0.216"	N/A
WEIGHT PER FOOT	0.64 lb/lf	N/A
MATERIAL	High density polyethylene (HDPE)	N/A
PROCESS OF MANUFACTURE	Pipe extrusion	N/A
SPECIFICATION	ASTM D2737 & AWWA C901	N/A
GRADE OR CLASS (Specified Minimum Yield Strength)	DR 11	N/A
TEST PRESSURE	150 psi	N/A
TYPE OF JOINT	Butt -fused	N/A
TYPE OF COATING	None	N/A
DETAILS OF CATHODIC PROTECTION	N/A	N/A
DETAILS OF SEALS OR PROTECTION AT END OF CASING	N/A	N/A
CHARACTER OF SUBSURFACE MATERIAL	Sandy loam/ wetlands	N/A
APPROXIMATE GROUND WATER LEVEL	0' to 1.5' deep	N/A
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS	Soil Survey of Lake County, Ohio	N/A

Proposed method of installation:

- Bore and jack (per Section 5.1.3 of NSCE-8)
- Jacking (per Section 5.1.4 of NSCE-8)
- Tunneling (with Tunnel Liner Plate) (per Section 5.1.5 of NSCE-8)
- Directional Bore/Horizontal Direction Drilling – Method A (per Section 5.1.6 of NSCE-8)
- Directional Bore/Horizontal Direction Drilling – Method B (per Section 5.1.6 of NSCE-8)
- Open Cut (per Section 5.1.2 of NSCE-8). *All installations directly under any track must be designed as a bored installation. Open cut installations will be considered on a case-by-case basis by Norfolk Southern's Division Superintendent at the time of installation.*
- Other (Specify): _____



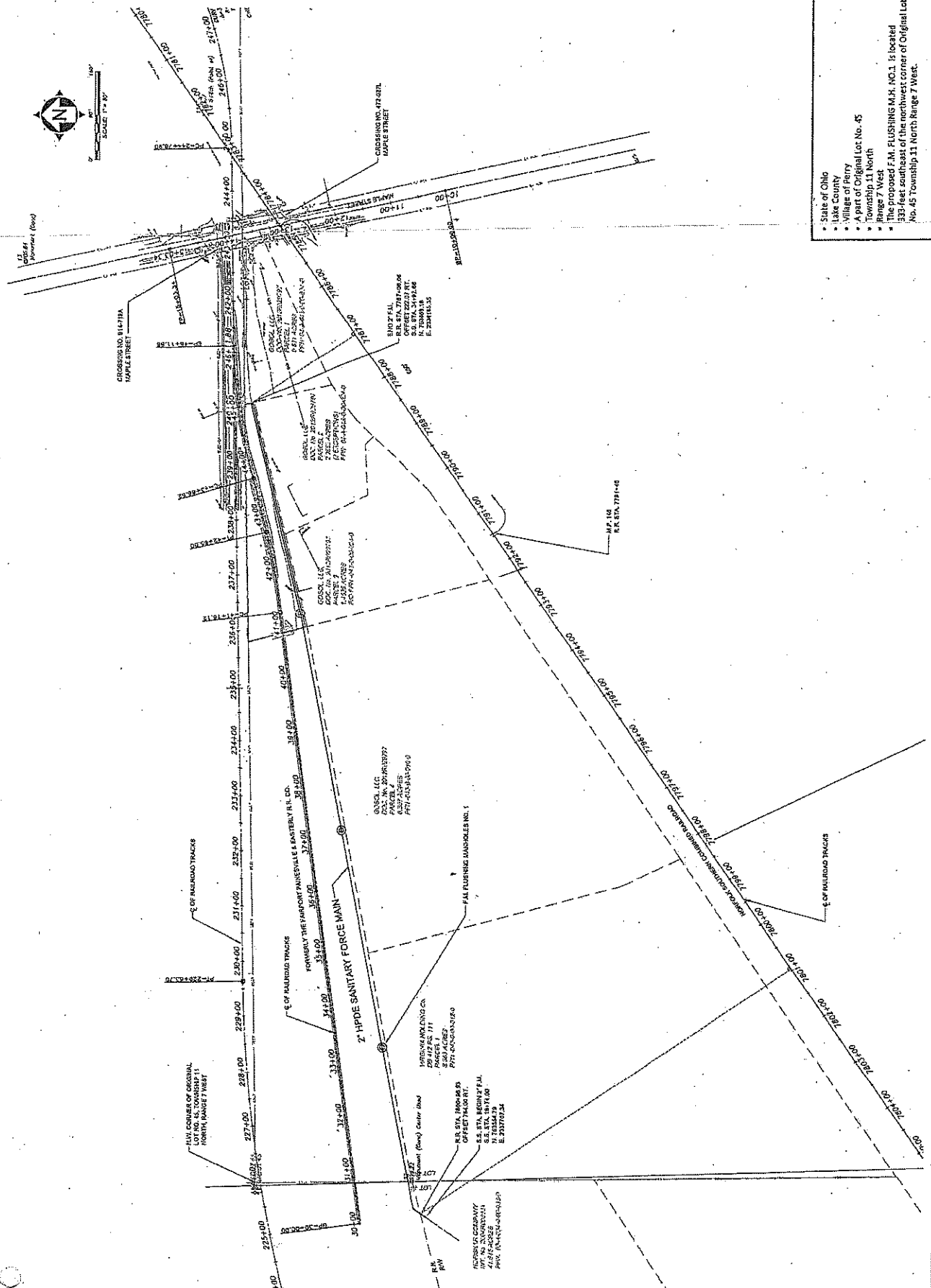
A-2 Received 2/22/2018
Perry Village, Ohio
Norfolk and Western Railway
Company
Lat: N 41.75531 - N 41.75496
Long: W 81.1415 - W 81.1444



NO.	REVISION	DATE

PROJECT NAME	PERRY TOWNSHIP AND PERRY VILLAGE
PROJECT NO.	11-01-2019-001
DATE	
SCALE	AS SHOWN
DRAWN BY	
CHECKED BY	

SITE	PERRY, OHIO
COUNTY	LAKE COUNTY
TOWNSHIP	TOWNSHIP 11 NORTH
RANGE	RANGE 7 WEST
SHEET NO.	



• State of Ohio
 • Lake County
 • Village of Perry
 • A part of Original Lot No. 45
 • Township 11 North
 • Range 7 West
 • The proposed F.M. FLUSHING M.H. NO.1 is located 332-feet southeast of the northwest corner of Original Lot No. 45 Township 11 North Range 7 West.

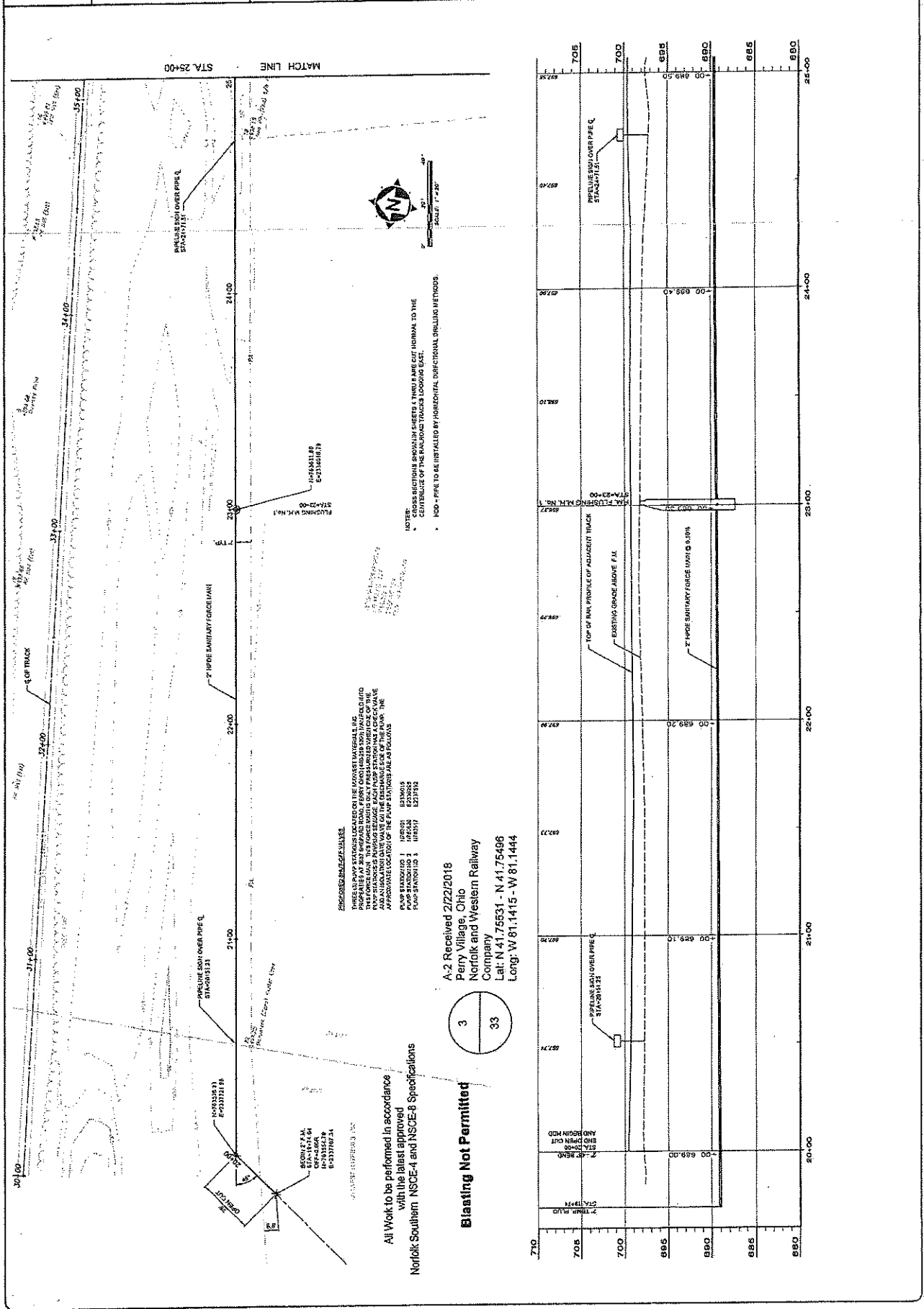
PROJECT NO.	170415	
DATE	08/15/18	
CIVIL		
SCALE	AS SHOWN	
DATE	08/15/18	
REVISION		
NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITS	
2	ISSUED FOR PERMITS	
3	ISSUED FOR PERMITS	
4	ISSUED FOR PERMITS	
5	ISSUED FOR PERMITS	
6	ISSUED FOR PERMITS	
7	ISSUED FOR PERMITS	

PLAN AND PROFILE
STA. 20+00 TO 25+00

PERRY TOWNSHIP AND PERRY VILLAGE
MIDWEST MATERIALS SANITARY
SEWAGE IMPROVEMENT
PERRY, OHIO

LAKE COUNTY
PERRY, OHIO

PROJECT NO. 170415
DATE 08/15/18
CIVIL
SCALE AS SHOWN
DATE 08/15/18
REVISION
NO. DESCRIPTION DATE
1 ISSUED FOR PERMITS
2 ISSUED FOR PERMITS
3 ISSUED FOR PERMITS
4 ISSUED FOR PERMITS
5 ISSUED FOR PERMITS
6 ISSUED FOR PERMITS
7 ISSUED FOR PERMITS

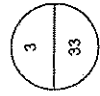


NOTE: ALL SECTIONS ARE BY GUSTAS & THOMAS CUT NORMAL TO THE CENTERLINE OF THE MAIN ROAD TRACES LOOKING EAST.

• HDB - PIPE TO BE INSTALLED BY HORIZONTAL DIRCTIONAL DRILLING METHODS.

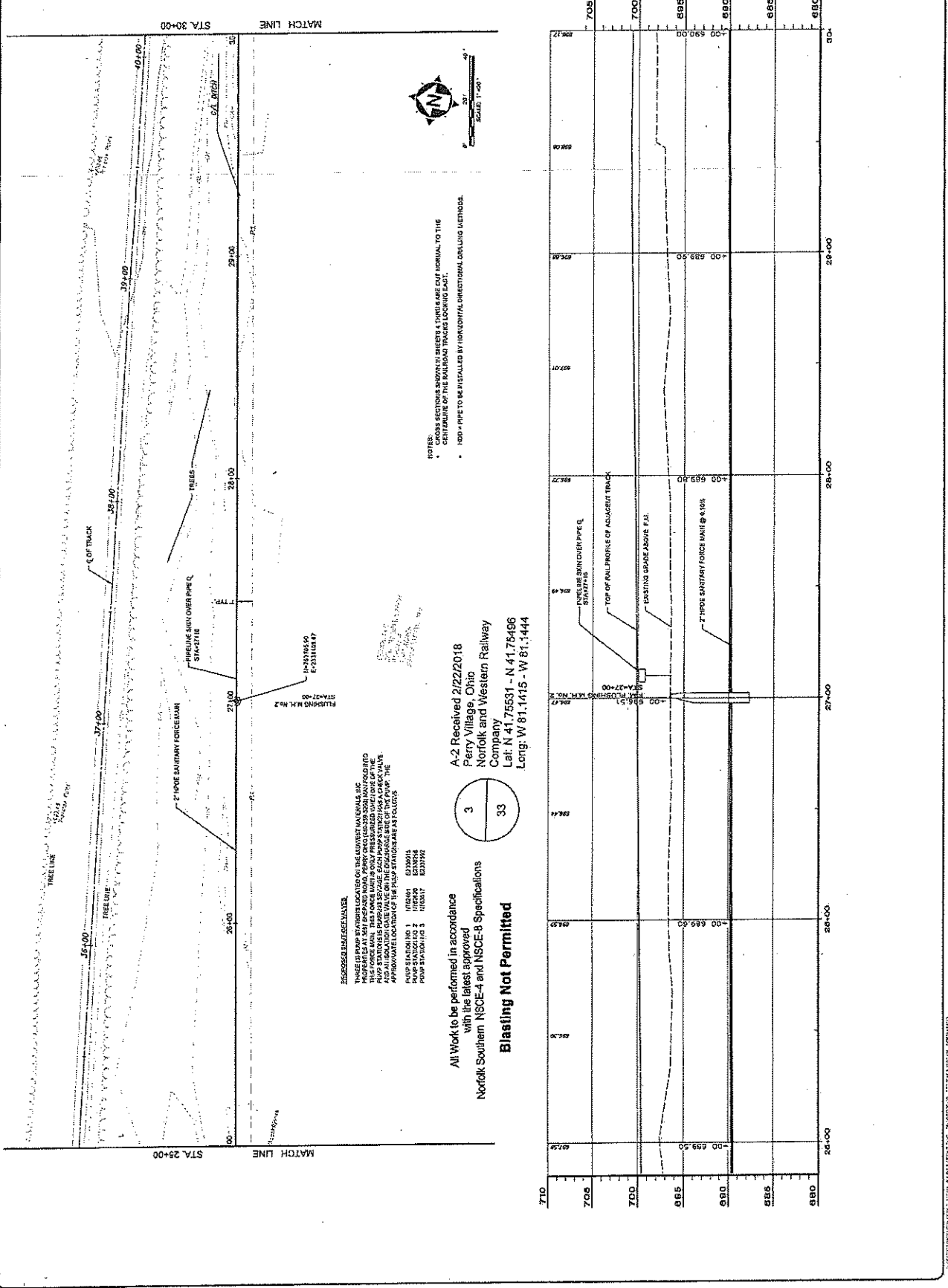
EMERGENCY VALVES
THESE 12\"/>

A-2 Received 2/22/2018
Perry Village, Ohio
Norfolk and Western Railway
Company
Lat: N 41.75531 - W 81.1444
Long: W 81.1415 - W 81.1444



All Work to be performed in accordance with the latest approved Norfolk Southern NSCE-4 and NSCE-8 Specifications

CONTRACT NO. 170415
PROJECT NO. 170415
DATE 08/15/18
CIVIL
SCALE AS SHOWN
DATE 08/15/18
REVISION
NO. DESCRIPTION DATE
1 ISSUED FOR PERMITS
2 ISSUED FOR PERMITS
3 ISSUED FOR PERMITS
4 ISSUED FOR PERMITS
5 ISSUED FOR PERMITS
6 ISSUED FOR PERMITS
7 ISSUED FOR PERMITS



NOTES:

- CROSS SECTIONS SHOWN IN SHEETS 4 THERE ARE CUT NORMAL TO THE CENTERLINE OF THE TRENCH. TRACKS LOOKING EAST.
- 100' - PIPE TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING METHODS.

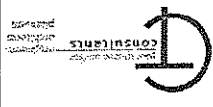
THREE (3) PUMP STATIONS LOCATED ON THE ADJACENT MAINTENANCE LANE ARE PROTECTED BY 2' DEEP SAND BARRIERS. PERRY OHIO (602) 299-3000. UNFOOTED PUMP STATIONS REQUIRE SAND BARRIERS. EACH PUMP STATION HAS A CHECK VALVE TO PREVENT BACKFLOW INTO THE MAINTENANCE LANE. THE APPROXIMATE LOCATION OF THE PUMP STATIONS ARE AS FOLLOWS:

PUMP STATION NO. 1 1752461 63100415
 PUMP STATION NO. 2 1752462 63100415
 PUMP STATION NO. 3 1752463 63100415

All Work to be performed in accordance with the latest approved Norfolk Southern NSCE-4 and NSCE-8 Specifications
Blasting Not Permitted

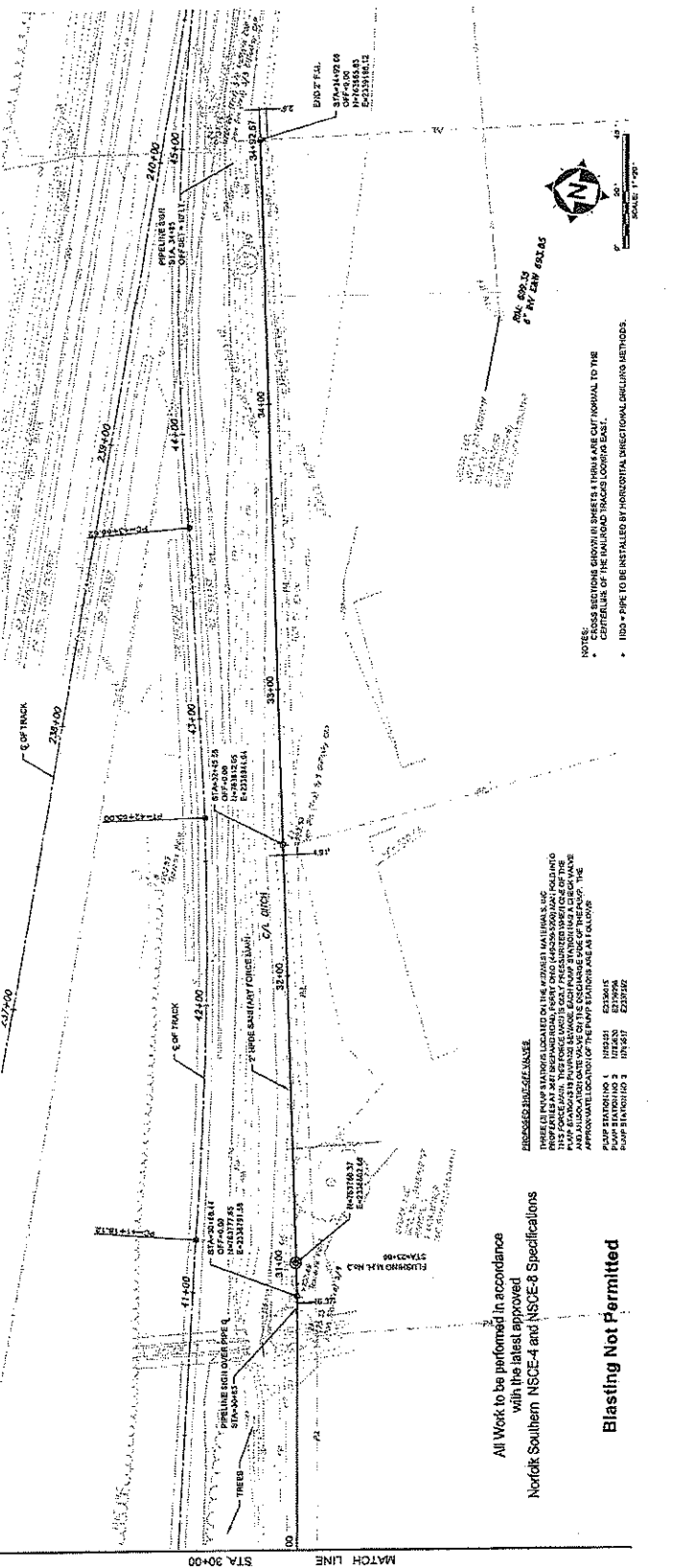
A-2 Received 2/22/2018
 Perry Village, Ohio
 Norfolk and Western Railway Company
 Lat: N 41.75531 - W 81.1444
 Long: W 81.14115 - W 81.1444

3
 33



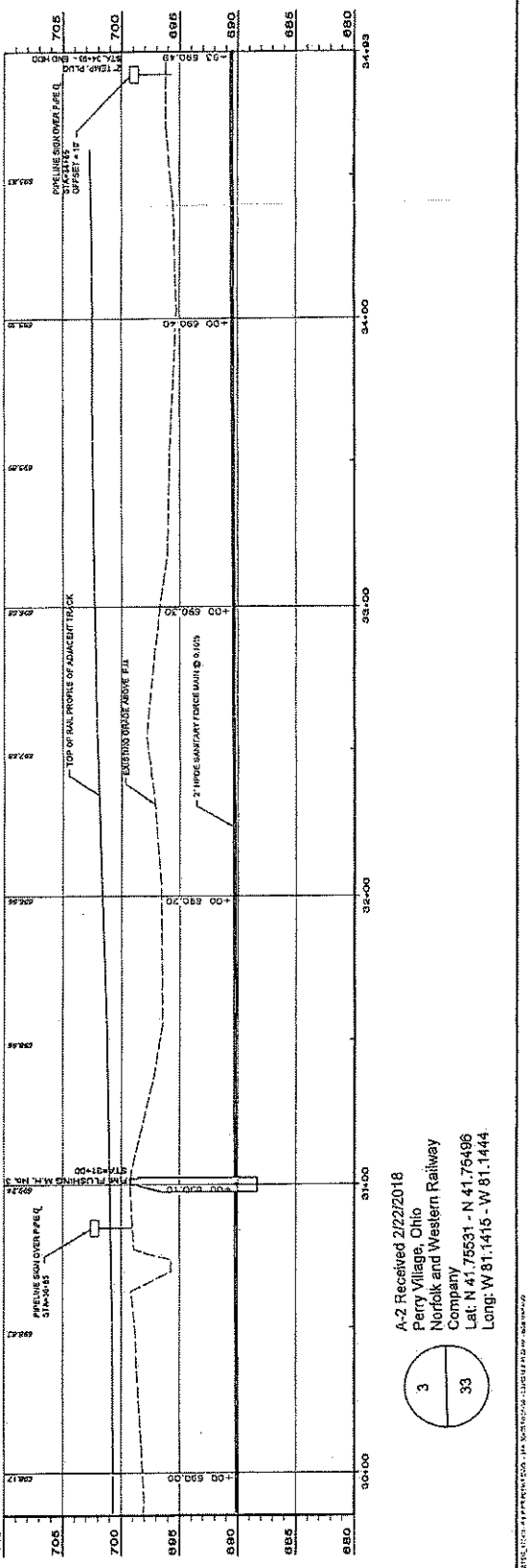
DATE	
DESCRIPTION	
BY	
REVIEW	
DATE	
DESCRIPTION	
BY	
REVIEW	
DATE	
DESCRIPTION	
BY	
REVIEW	
DATE	

SHEET	4
OF	7
PLAN AND PROFILE	
STATIONING	STA. 30+00 TO 36+00
PROJECT	MIDWEST MATERIALS SANITARY SEWAGE IMPROVEMENT
CITY	PERRY, OHIO
COUNTY	LAKE COUNTY
DATE	

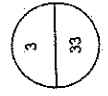


RECORDED BRIDGE VALUES
 PERRY TWP BRIDGE LOCATED ON THE WESTERN NATIONAL INC
 PROPERTY AT THE INTERSECTION OF PERRY AND CANTON HIGHWAY. HOLDING
 RECORDS FOR THE BRIDGE ARE KEPT AT THE OFFICE OF THE ENGINEER. THE
 BRIDGE IS A 20' SPAN CONCRETE ARCH BRIDGE. THE BRIDGE WAS
 BUILT IN 1953. THE BRIDGE IS IN GOOD CONDITION. THE BRIDGE
 AND APPROXIMATE DATE OF THE BRIDGE ARE AS SHOWN IN THE
 APPROXIMATE LOCATION OF THE BRIDGE IS AS SHOWN IN THE
 PLAN. THE BRIDGE IS A 20' SPAN CONCRETE ARCH BRIDGE.
 PUMP STATION NO. 2
 PUMP STATION NO. 3
 PUMP STATION NO. 4

All Work to be performed in accordance
 with the latest approved
 Norfolk Southern NSCE-4 and NSCE-8 Specifications
Blasting Not Permitted



A-2 Received 2/22/2018
 Perry Village, Ohio
 Norfolk and Western Railway
 Company
 Lat: N 41.75531 - W 81.1444
 Long: W 81.1415 - W 81.1444

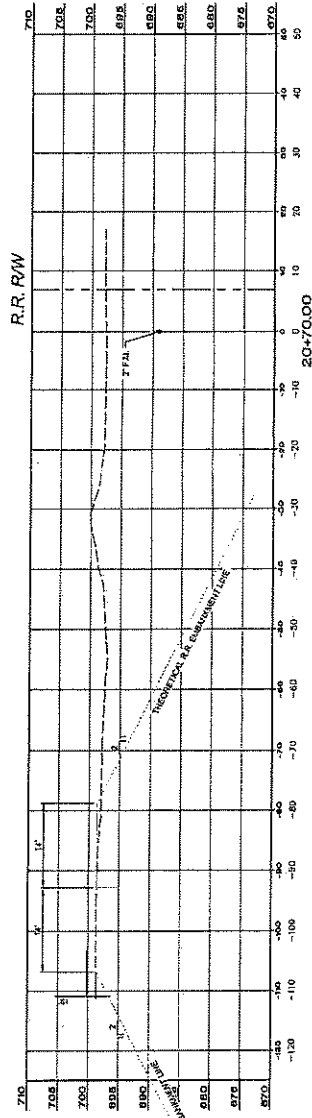
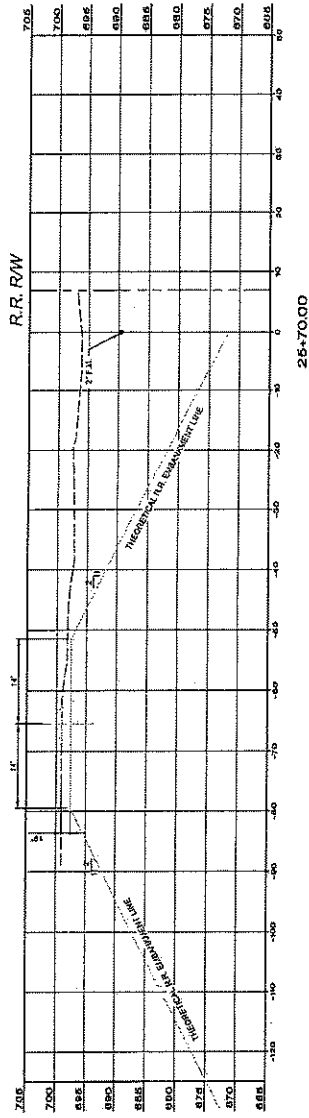
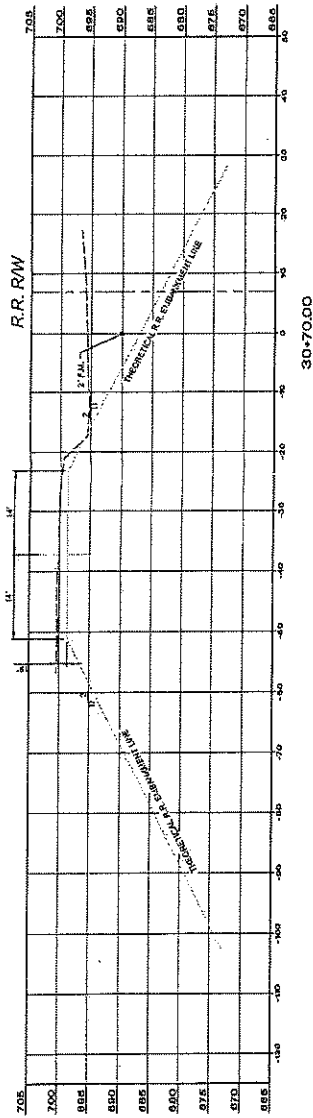


All Work to be performed in accordance with the latest approved Norfolk Southern NSCE-4 and NSCE-8 Specifications

A-2 Received 2/22/2018
Perry Village, Ohio
Norfolk and Western Railway
Company
Lat: N 41.75531 - N 41.75496
Long: W 81.1415 - W 81.1444



Blasting Not Permitted



PERRY TOWNSHIP AND PERRY VILLAGE MIDWEST MATERIALS SANITARY SEWAGE IMPROVEMENT PERRY, OHIO		CROSS SECTIONS SECTIONS 20+70, 25+70, 30+70	
PROJECT NO.	170416	DATE	11/15/17
DRAWN BY	MM	SCALE	AS SHOWN
CHECKED BY	MM	DATE	11/15/17
DESIGNED BY	MM	DATE	11/15/17
REVIEW		DATE	
REV.	DESCRIPTION	DATE	
1			
2			
3			
4			
5			
6			
7			

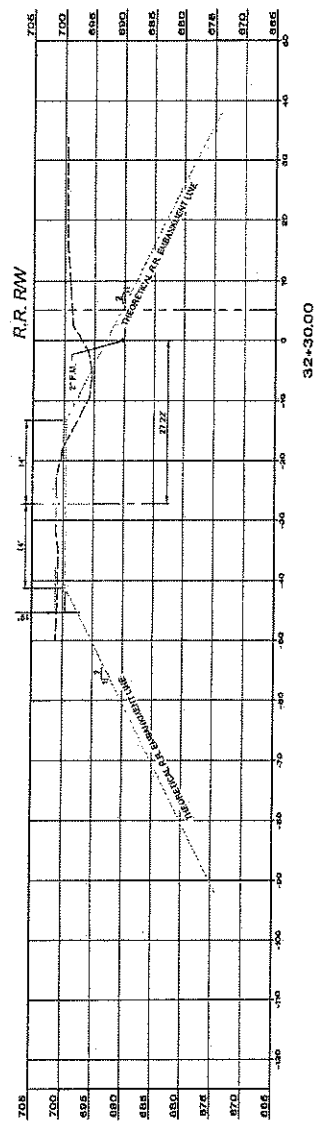
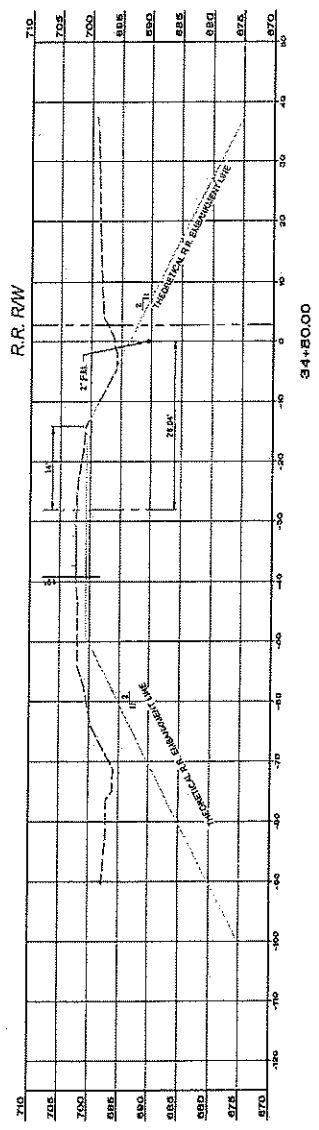


SCALE HORIZ.: 1" = 10'
SCALE VERT.: 1" = 10'

All Work to be performed in accordance with the latest approved Norfolk Southern NSCE-4 and NSCE-8 Specifications

Blasting Not Permitted

A-2 Received 2/22/2018
 Perry Village, Ohio
 Norfolk and Western Railway
 Company
 Lat: N 41.75531 - N 41.75496
 Long: W 81.14415 - W 81.1444



PROJECT NO.	170415
DISTRICT	CIVIL
SUB-DISTRICT	SEWERAGE
SECTION	SECTION 32+30 AND 34+80
CROSS SECTIONS	PERRY, OHIO
DESIGNED BY	SCALE AS SHOWN
DRAWN BY	SCALE AS SHOWN
CHECKED BY	SCALE AS SHOWN
DATE	
REVISION	
NO.	DESCRIPTION
DATE	

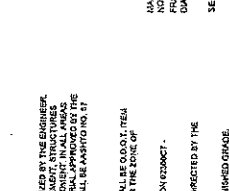
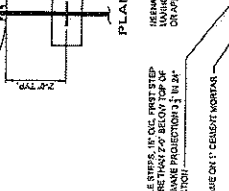
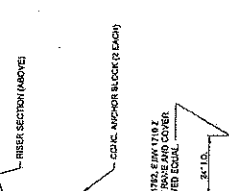
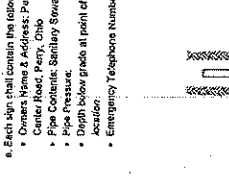
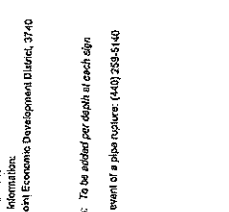
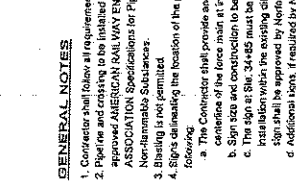
SECTION 32+30 AND 34+80
 CROSS SECTIONS
 PERRY, OHIO
 LAKE COUNTY
 MIDWEST MATERIALS SANITARY
 SEWAGE IMPROVEMENT
 PERRY TOWNSHIP AND PERRY VILLAGE

SCALE HORIZ. 1" = 10'
 SCALE VERT. 1" = 10'

SHEET 6 OF 7

GENERAL NOTES

- Contractor shall follow all requirements of National Sanitary NCSE-8 Specifications.
- Pipeline and crossing to be installed and maintained in accordance with the latest approved AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION Specifications for Pipelines Conveying Flammable and Non-Flammable Substances.
- Splicing is not permitted.
- Splicing means the location of the pipeline shall be installed in accordance with the location of the force main at electric oil to exceed 50 feet.
- The span size and construction to be in accordance with Norfolk Southern standards.
- The sign at the 34x45 must be located to the north of the force main to avoid installation within the existing ditch or embankment. The final location for the sign shall be approved by Norfolk Southern.
- Additional sign, if required by Norfolk Southern, shall be provided by the Contractor at no additional cost to the Owner.
- Each sign shall contain the following information:
 - Owner's address: Perry Joint Economic Development District, 3740 Perry, OH 43084
 - Project Name: Sanitary Sewage
 - Pipe Material: Sanitary Sewage
 - Pipe Pressure:
 - Depth below grade at point of sign: To be added per depth at each sign location
 - Emergency Telephone Number in event of a pipe rupture: (603) 293-5149

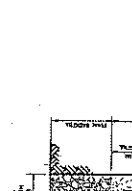
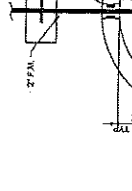
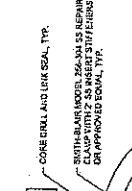
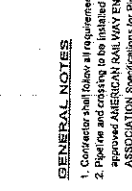
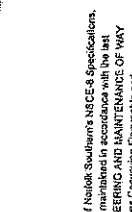


CLASS A, PIPE EMBEDMENT:
 CLASS A PIPE EMBEDMENT SHALL BE USED FOR ALL RISING MAINS AND OTHER MAINS EXPOSED TO THE SURFACE OR TO THE TOP OF THE TRENCH. THE TRENCH SHALL BE MINIMUM 18\"/>

CLASS B, PIPE EMBEDMENT:
 CLASS B PIPE EMBEDMENT SHALL BE USED FOR ALL RISING MAINS AND OTHER MAINS EXPOSED TO THE SURFACE OR TO THE TOP OF THE TRENCH. THE TRENCH SHALL BE MINIMUM 18\"/>

CLASS C, PIPE EMBEDMENT:
 CLASS C PIPE EMBEDMENT SHALL BE USED FOR ALL RISING MAINS AND OTHER MAINS EXPOSED TO THE SURFACE OR TO THE TOP OF THE TRENCH. THE TRENCH SHALL BE MINIMUM 18\"/>

CLASS D, PIPE EMBEDMENT:
 CLASS D PIPE EMBEDMENT SHALL BE USED FOR ALL RISING MAINS AND OTHER MAINS EXPOSED TO THE SURFACE OR TO THE TOP OF THE TRENCH. THE TRENCH SHALL BE MINIMUM 18\"/>



ALL PRECAST CONCRETE SHALL BE REFORCED IN ACCORDANCE WITH THE DESIGN DRAWING REINFORCEMENT.

MANHOLE STEPS SHALL BE CONSTRUCTED WITH 2\"/>

SET FRAME ON 1\"/>

ADJUSTING COLLARS (3\"/>

SET FRAME ON 1\"/>

ALL PRECAST CONCRETE SHALL BE REFORCED IN ACCORDANCE WITH THE DESIGN DRAWING REINFORCEMENT.

MANHOLE STEPS SHALL BE CONSTRUCTED WITH 2\"/>

SET FRAME ON 1\"/>

ADJUSTING COLLARS (3\"/>

SET FRAME ON 1\"/>

ALL PRECAST CONCRETE SHALL BE REFORCED IN ACCORDANCE WITH THE DESIGN DRAWING REINFORCEMENT.

MANHOLE STEPS SHALL BE CONSTRUCTED WITH 2\"/>

SET FRAME ON 1\"/>

ADJUSTING COLLARS (3\"/>

SET FRAME ON 1\"/>

NOTES:

- USE TYPE L STEP FOR MANHOLES OR CIRCULAR STRUCTURES OF 18\"/>
- USE TYPE B STEP FOR RECTANGULAR STRUCTURES SUCH AS VAULTS, VALVES ETC. OR CIRCULAR STRUCTURES OVER 24\"/>
- RECONSTRUCTION RIGHTS SHALL BE IN ACCORDANCE WITH PHS-8 REQUIREMENTS.

TYPICAL MANHOLE STEP DETAIL
 (1/21)

MODULAR MECHANICAL SLEEVE DETAIL
 (1/21)

TRENCHING, EMBEDMENT AND BACKFILL DETAIL
 (1/21)

CLASS A, PIPE EMBEDMENT
 (1/21)

CLASS B, PIPE EMBEDMENT
 (1/21)

CLASS C, PIPE EMBEDMENT
 (1/21)

CLASS D, PIPE EMBEDMENT
 (1/21)

FLUSHING MANHOLE DETAIL
 (1/21)

CONCRETE ANCHOR BLOCK
 (1/21)

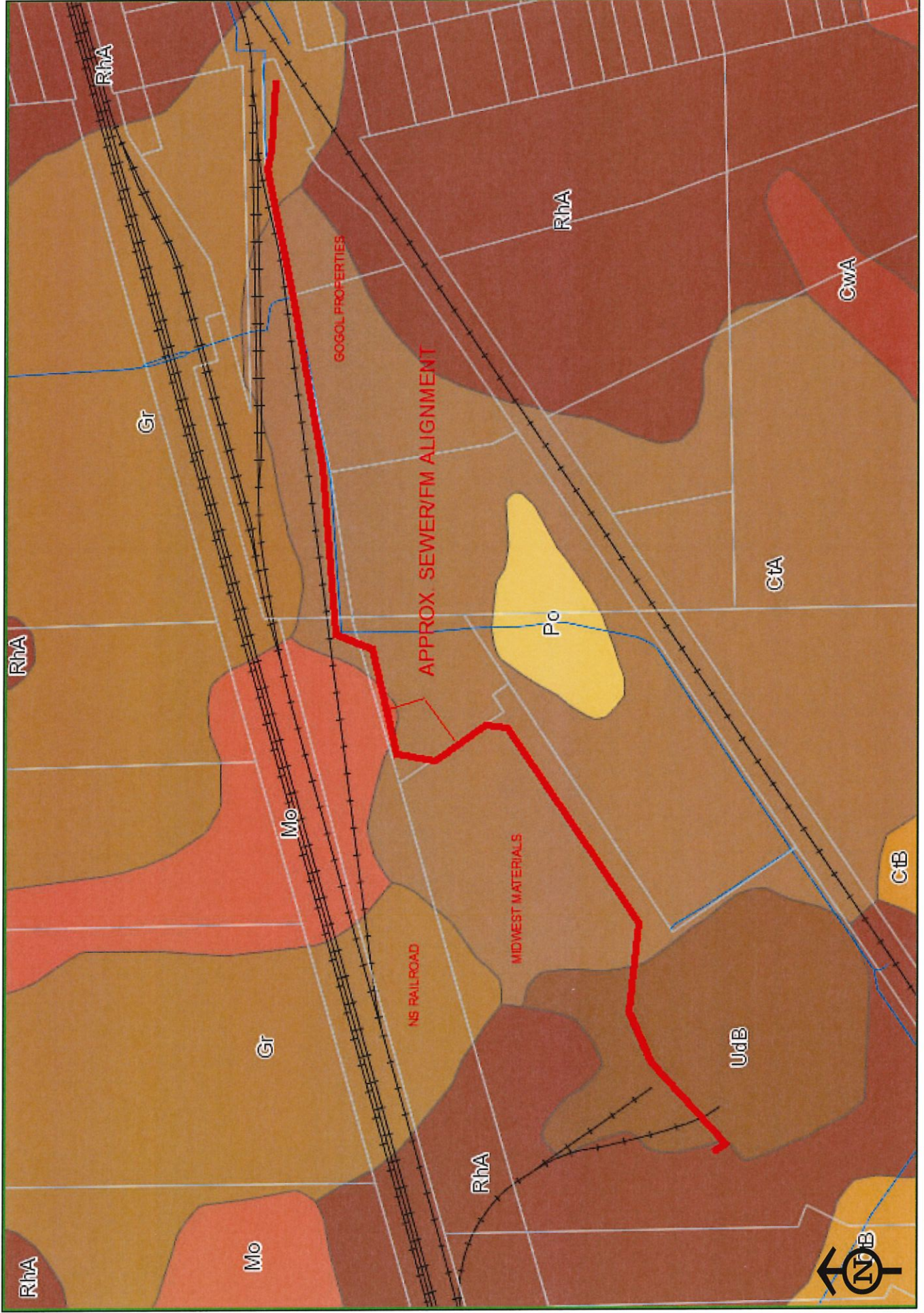
PRESSURE RELIEF VALVE IN SLAB
 (1/21)

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APPENDIX C

Lake County Soil Survey Information

LAKE COUNTY SOILS INFORMATION



Property lines are graphic representations and are **NOT** survey accurate.
Lake County GIS Dept. / Lake County Tax Map Dept., 105 Main Street, Painesville, OH

1 inch = 400 feet
Creation Date: March 16, 2018

Competition is strong between agriculture, woodland, and community development on this soil. Some areas are used for sand pits. This soil has fair potential for farming, woodland, and building sites but poor potential for most sanitary facilities.

Droughtiness and slope are the major limitations for farming. This soil is suited to hay, pasture, and other crops, such as orchards that are maintained in permanent sod. The erosion hazard limits the use of irrigation for clean-cultivated crops. This soil is better suited to deep-rooted crops, such as alfalfa, than to most other crops. Conservation of moisture is very important. Because nutrients are rapidly leached, this soil generally responds better to smaller but more frequent or more timely applications of fertilizer than to one large application. Use of crop residue and cover crops helps to maintain organic matter content and reduce erosion.

Only a small acreage of this soil is wooded. This soil is moderately suited to woodland. Seedling mortality is severe during dry years.

Although slope limits use of this soil for building sites, most areas are good homesites. Soil blowing and water erosion are serious hazards during construction. As much plant cover as possible should be maintained on the site during construction to reduce erosion. Because this soil is droughty, lawns are difficult to maintain. Seeding should be done early in spring; if seeded during dry periods, lawns should be mulched and watered. Sloughing is a hazard in excavations. Sanitary facilities are limited by possible contamination of ground water because of seepage. The sandy surface layer and slope limit most recreational uses. Capability subclass IVE; woodland suitability subclass 4s.

CoF—Colonie loamy fine sand, 25 to 50 percent slopes. This deep, very steep, somewhat excessively drained soil is along drainageways that cut through beach ridges. Most areas are long and narrow in shape and range from 5 to 200 acres in size.

Typically, the surface layer is very dark grayish brown, loose loamy fine sand about 2 inches thick. The subsoil is about 48 inches thick. The upper part of the subsoil is yellowish brown, loose fine sand; and the lower part is pale brown, loose fine sand that has thin bands of dark brown loamy sand. The substratum, to a depth of about 60 inches, is brown, loose fine sand.

Included with this soil in mapping are small areas of Otisville, Tyner, and Oshtemo soils. Small seep areas are included on the lower part of some side slopes.

Permeability is rapid, and the soil dries quickly after rains. Available water capacity is low in the deep rooting zone. The organic matter content is low. Runoff is rapid. The surface layer is strongly acid to slightly acid, and the subsoil is strongly acid to neutral.

Slope controls the use of this soil. Most of the acreage is used for woodland and wildlife habitat. This soil has poor potential for farming, building sites, and sanitary facilities.

This soil is poorly suited to farming because it is very steep and droughty. Use of tillage equipment is very difficult. The hazard of erosion is very severe if plant cover is removed.

This soil is moderately suited to poorly suited to woodland. Slope severely limits use of equipment.

The very steep slope severely limits use of this soil for building sites and sanitary facilities. The hazard of erosion is very severe if vegetation is removed. Sloughing is a hazard in excavations. Trails in recreational areas should be protected from erosion and established across the slope where possible. Capability subclass VIIe; woodland suitability subclass 4s.

CtA—Conneaut silt loam, 0 to 1 percent slopes. This deep, level, poorly drained soil is the dominant soil on the lake plain. Areas are 1/2 to 1 mile wide.

Typically, the surface layer is dark grayish brown, firm silt loam about 9 inches thick. The subsoil is mottled, firm silty clay loam about 45 inches thick; it is gray and grayish brown in the upper part and yellowish brown in the lower part. The substratum, to a depth of about 60 inches, is yellowish brown and light olive brown, mottled, firm silty clay loam. In a few areas the soil has a dark gray surface layer about 8 inches thick with moderate organic matter content. These areas are mainly between State Route 84 and Interstate 90 west of Madison Village.

Included with this soil in mapping are small areas of Swanton soils that have a loam or sandy loam surface layer. These soils are more easily tilled.

This soil has a seasonal high water table near the surface for long periods in winter, spring, and early summer. It dries and warms slowly in spring. Permeability is slow, and available water capacity is high in the rooting zone. Rooting depth is related to the depth of the water table. The rooting zone is deep in drained areas. Organic matter content is moderately low. The surface layer and subsoil are very strongly acid to neutral.

Most of the acreage of this soil is in meadow or natural shrubs and trees. Some areas are drained and used for farming. This soil has fair potential for farming and good potential for woodland. It has poor potential for building sites and sanitary facilities.

The major limitations for farming are slow permeability and seasonal wetness. If this soil is drained, it is suited to crops, hay, and pasture. Undrained areas can be used for hay and pasture, but maintaining tilth and desirable forage stands is difficult. Because of the slow permeability, a combination of surface and subsurface drains is needed in many areas. This soil is subject to surface crusting, compaction, and hard clodding if tillage or harvesting operations are performed when the soil is wet. Using crop residue and cover crops increases water infiltration and improves organic matter content and tilth.

This soil is well suited to woodland. Use of harvesting equipment is limited during wet seasons. Reforestation with desirable species is difficult because of severe plant competition.

Seasonal wetness and slow permeability severely limit use of this soil for building sites and sanitary facilities (fig. 1). Surface drains and storm sewers can be used to remove surface water. Local roads can be improved by using artificial drainage and suitable base material. Capability subclass IIIw; woodland suitability subclass 2w.

CtB—Conneaut silt loam, 1 to 4 percent slopes. This deep, gently sloping, somewhat poorly drained soil is along drainageways on the lake plain. Slopes are typically short. Slope is generally 2 to 4 percent. Most areas are long and narrow in shape and range from 10 to 100 acres in size.

Typically, the surface layer is dark grayish brown, friable silt loam about 12 inches thick. The subsoil is mottled, firm silty clay loam about 28 inches thick; it is yellowish brown in the upper part and dark yellowish brown in the lower part. The substratum, to a depth of about 80 inches, is dark yellowish brown, firm silt loam. In some small areas the surface layer is loam.

Included with this soil in mapping are a few areas of eroded soils on the upper part of side slopes. These eroded soils have a grayish brown or brown surface layer and commonly have poor tilth. Also included are a few areas adjacent to beach ridges where slope is 5 to 8 percent.

In undrained areas, this soil has a seasonal high water table at a depth of 6 to 18 inches in winter, spring, and early summer. This soil dries and warms slowly in spring. Permeability is slow, and available water capacity is high in the rooting zone. Runoff is slow or medium. Rooting depth is influenced by the water table. The rooting zone is deep in drained areas. Organic matter content is moderately low. The surface layer and subsoil are very strongly acid to neutral.

Most of the acreage of this soil is used for farming, homesites, or natural shrubs and trees. This soil has good potential for farming and woodland but poor potential for building sites and sanitary facilities.

The major limitations for cultivated crops are seasonal wetness and slow permeability. Undrained areas can be used for hay and pasture, but maintaining tilth and desirable forage stands is difficult.

If this soil is drained, it is suited to crops, hay, and pasture. Tillage operations are commonly delayed. The slow internal water movement reduces the effectiveness of subsurface drains. A combination of surface and subsurface drains is needed in most areas. Tilling and grazing when the soil is wet cause the soil to compact. Using crop residue and cover crops increases water infiltration and improves organic matter content and tilth.

This soil is well suited to woodland. Reforestation with desirable species is difficult because of severe plant competition. Use of harvesting equipment is limited during wet seasons.

Slow permeability and seasonal wetness limit use of this soil for building sites and sanitary facilities. It is better suited to houses without basements than to those with basements. Buildings should be landscaped for good

surface drainage away from the foundations. Local roads can be improved by using artificial drainage and suitable base material. Capability subclass IIw; woodland suitability subclass 2w.

CwA—Conneaut silt loam, shale substratum, 0 to 2 percent slopes. This deep, nearly level, poorly drained soil is in broad areas on the lake plain. Most areas are long and narrow in shape and range from 10 to 200 acres in size.

Typically, the surface layer is dark gray, friable silt loam about 8 inches thick. The subsoil is mottled, firm silty clay loam about 35 inches thick. It is grayish brown in the upper part and yellowish brown in the lower part. Weathered shale bedrock is below a depth of about 43 inches.

In undrained areas, this soil has a perched seasonal high water table near the surface during winter, spring, and early summer. Permeability is slow, and available water capacity is moderate in the rooting zone. Runoff is slow. Shale bedrock is at a depth of 40 to 60 inches. This soil dries and warms slowly in spring. Rooting depth is influenced by the water table. The rooting zone is deep in drained areas. Organic matter content is moderately low. The surface layer and subsoil are very strongly acid to neutral.

Most of the acreage of this soil is in meadow or natural shrubs and trees. This soil has fair potential for farming and good potential for woodland. It has poor potential for building sites and sanitary facilities.

Excessive wetness and slow permeability are major limitations for farming. These characteristics commonly delay tillage operations. Undrained areas can be used for hay and pasture, but maintaining tilth and desirable forage stands is difficult. Drained areas are suited to crops, hay, and pasture. The slow internal water movement reduces the effectiveness of subsurface drains. Outlets for subsurface drains are not available in many areas. Surface drains can be used to remove surface water. This soil is subject to surface crusting, compaction, and hard clodding if tillage or harvesting operations are performed when the soil is wet. Using crop residue and cover crops increases water infiltration and improves organic matter content and tilth.

This soil is well suited to woodland. Use of harvesting equipment is limited during wet seasons. Reforestation with desirable species is difficult because of severe plant competition.

Seasonal wetness, depth to bedrock, and slow permeability severely limit use of this soil for building sites and sanitary facilities. The bedrock is rippable. Surface drains and storm sewers can be used to remove surface water. Local roads can be improved by using artificial drainage and suitable base material. Wetness also limits recreational use. Capability subclass IIIw; woodland suitability subclass 2w.

CxA—Conotton loam, 0 to 2 percent slopes. This deep, nearly level, somewhat excessively drained soil is mainly on outwash terraces. A few areas are on postglacial

Included with this soil in mapping on the lower part of side slopes are areas of well drained soils that are similar to Gosport soils but that have colluvium on the surface. These soils commonly have shale bedrock at a depth of 40 to 70 inches. Also included are areas of somewhat excessively drained, shallow soils on the upper part of side slopes.

Permeability is slow, and runoff is very rapid. The rooting depth is restricted by shale bedrock at a depth of 20 to 40 inches. Available water capacity and organic matter content are low. The surface layer is slightly acid to extremely acid, and the subsoil is extremely acid to strongly acid.

Most of the acreage of this soil is in woodland. This soil has fair potential for woodland but poor potential for farming, building sites, and sanitary facilities.

The major limitation for farming is the very steep slope. This soil is highly susceptible to erosion and land slippage. A thick plant cover helps to control erosion.

This soil is suited to woodland and wildlife habitat. The hazard of erosion is severe. The very steep and generally uneven slope limits use of logging equipment.

Construction for urban use is very difficult because of the very steep slopes. The hazard of erosion is high when vegetation is removed. Low strength and moderate depth to bedrock also limit many uses. Trails in recreational areas should be protected from erosion and established across the slope wherever possible. Capability subclass VIIe; woodland suitability subclass 3r.

Gr—Granby sandy loam. This deep, nearly level, very poorly drained soil is in basinlike depressions on the lake plain. Slope ranges from 0 to 2 percent. Most areas are irregular in shape and range from 5 to 100 acres in size.

Typically, the surface layer is black, friable sandy loam about 12 inches thick. The subsoil is about 20 inches thick. The upper part of the subsoil is gray, very friable gravelly coarse sandy loam; and the lower part is gray, loose gravelly loamy coarse sand. The substratum, to a depth of about 60 inches, is olive gray, loose sand and fine sand. Some small areas of soils have a dark grayish brown surface layer.

Included with this soil in mapping are small areas of soils that have a loamy sand surface layer; these soils have very low available water capacity. Some included areas in the lower part of depressions are ponded during extended wet periods. Also included are small areas of slowly or very slowly permeable Swanton soils in which fine textured and moderately fine textured sediment is at a depth of 18 to 40 inches.

Unless artificially drained, this soil has a seasonal high water table near the surface for long periods. Permeability is rapid. The rooting depth is related to the depth of the water table. The rooting zone is moderately deep or deep in most drained areas. Available water capacity is low. Runoff is very slow. Organic matter content is moderate. The surface layer and subsoil are medium acid or strongly acid except where the surface layer has been limed.

Most of the acreage of this soil is used for nursery stock, vegetables, and natural shrubs and trees. This soil has fair potential for specialty crops, row crops, hay, pasture, and woodland. It has poor potential for building sites and sanitary facilities.

Seasonal wetness is the dominant limitation for farming. This soil dries slowly in spring unless it is artificially drained. Undrained areas are too wet for cultivated crops in most years, but drained areas are suited to cultivated crops and specialty crops. This soil is suited to growing wetness-tolerant grasses and legumes for hay and pasture. Grazing should be controlled to reduce soil compaction and increase plant growth. This soil has desirable characteristics for digging and balling of nursery stock. Subsurface drains can be used if outlets are available. Special measures, such as using graded sand and gravel filters or prefabricated filter materials, are needed in some areas to prevent subsurface drains from plugging with fine sand. Surface drains can be used in some of the included areas that are subject to ponding. Using cover crops, incorporating crop residue in the soil, and tilling and harvesting at proper moisture content are important. This soil is moderately well suited to woodland. Wetness limits use of harvesting equipment.

Prolonged wetness severely limits use of this soil for building sites and sanitary facilities. Sloughing is a hazard in excavation. Suitable base material and artificial drainage are commonly required for roads. Capability subclass IIIw; woodland suitability subclass 3w.

Kf—Kingsville fine sand. This deep, nearly level, very poorly drained, sandy soil is adjacent to beach ridges. Slope ranges from 0 to 2 percent. Most areas are long and narrow in shape and range from 5 to several hundred acres in size.

Typically, the surface layer is very dark gray, very friable fine sand about 8 inches thick. The subsoil is grayish brown, mottled, very friable fine sand about 22 inches thick. The substratum, to a depth of about 60 inches, is grayish brown and gray, loose sand. In some areas this soil has a dark gray surface layer with slightly lower organic matter content.

Included with this soil in mapping on slight rises are small areas of Stafford soils that have a lighter colored surface layer.

This soil receives seepage water from the beach ridges. It has a seasonal high water table near the surface in winter, spring, and other extended wet periods. Permeability is rapid, and runoff is very slow. Rooting depth is related to the depth of the water table. Available water capacity is low. Organic matter content is moderate. The subsoil is very strongly acid to slightly acid, but the surface layer varies widely in reaction, depending on the amount of liming.

Most of the acreage of this soil is used for woodland, pasture, crops, and natural shrubs. Drained areas are used for vegetables and nursery stock. This soil has poor potential for farming, building sites, and sanitary facilities. It has good potential for woodland.

A perched seasonal high water table is at a depth of 6 to 18 inches during winter, spring, and other extended wet periods. Permeability is slow. Runoff is slow or medium. Depth to rippable bedrock ranges from 40 to 60 inches. This soil warms and dries slowly in spring, even if it is artificially drained. Rooting depth is influenced by the water table. In spring, the rooting zone is mainly the upper 15 to 20 inches of the soil. It is moderately deep over glacial till. Available water capacity is moderate. Organic matter content is moderately low. The surface layer is very strongly acid to neutral, and the subsoil is very strongly acid to mildly alkaline.

About half of the acreage of this soil is in woodland or brush; the other half is used for farming. This soil has fair potential for farming and good potential for woodland. It has poor potential for most sanitary facilities and for building sites.

Seasonal wetness and slow permeability limit farming. Planting is delayed and the choice of crops is limited in undrained areas. These areas can be used for hay and pasture, but maintaining desirable forage stands and tilth is difficult. Drained areas are suited to cultivated crops, hay, and pasture. Both surface and subsurface drains can be used to improve drainage in most areas. This soil needs to be cultivated at suitable moisture content because it is sticky when wet. Hard clods and a crusty surface form if this soil is cultivated when wet. Grazing should be controlled to reduce compaction. Erosion is a hazard where slope is 2 to 6 percent. Returning crop residue, using cover crops, and tilling and harvesting at proper moisture content help to reduce erosion, increase water infiltration, and maintain organic matter content and tilth.

This soil is well suited to woodland. Use of harvesting equipment is limited during wet seasons. Reforestation with desirable species is difficult because of severe plant competition.

Seasonal wetness, slow permeability, and bedrock at a depth of 40 to 60 inches severely limit the use of this soil for most building sites and sanitary facilities. Building sites should be landscaped to provide good surface drainage away from the foundation. Sanitary facilities should be connected to commercial sewers wherever possible. Local roads can be improved by using artificial drainage and suitable base material. This soil can support a good turf for lawns, but the turf is easily damaged when the soil is soft. Capability subclass IIIw; woodland suitability subclass 2w.

Mo—Minoa fine sandy loam. This deep, nearly level, somewhat poorly drained soil is on the lake plain. Slope ranges from 0 to 2 percent. Areas of this soil are irregular in shape and range from 20 to 100 acres in size.

Typically, the surface layer is very dark grayish brown, friable fine sandy loam about 12 inches thick. The subsoil is yellowish brown, mottled, friable and firm loam about 40 inches thick. The substratum, to a depth of about 60 inches, is brown, mottled, firm loam.

Included with this soil in mapping are a few spots of Stafford soils. Also included are some areas along drainageways where the slope is 2 to 4 percent.

A seasonal high water table is at a depth of 6 to 18 inches during winter, spring, and other extended wet periods. In undrained areas the soil dries slowly in spring. Permeability is moderate, and runoff is slow. Rooting depth is influenced by the water table. Drained areas have a deep rooting zone. Available water capacity is high. The organic matter content is moderately low. The surface layer and subsoil are strongly acid to neutral.

Most of the acreage of this soil is used for farming. A few areas are used for nursery stock and orchards. This soil has good potential for farming and woodland but poor potential for building sites and sanitary facilities.

The major limitation for farming is seasonal wetness. If this soil is drained, it is suited to cultivated crops, nursery stock, hay, and pasture (fig. 6). Wetness delays planting and limits the choice of crops. Surface drains help to remove excess surface water; subsurface drains help to control the water table. Undrained areas can be used for hay and pasture, but maintaining desirable forage stands is difficult. Grazing should be controlled to reduce soil compaction and increase plant growth. Management practices, such as using cover crops, incorporating crop residue in the soil, and tilling at proper moisture content, improve tilth and increase organic matter content.

This soil is well suited to woodland. Plant competition is a hazard because tall weeds and brush grow abundantly. Wetness limits the use of planting and harvesting equipment.

The seasonal high water table severely limits the use of this soil for most sanitary facilities and for building sites. Ditches and subsurface drains are fairly effective in controlling the water table. Houses without basements are better suited to this soil than those with basements. Local roads can be improved by using artificial drainage and suitable base material. Capability subclass IIw; woodland suitability subclass 2w.

MtA—Mitiwanga silt loam, 0 to 2 percent slopes. This moderately deep, nearly level, somewhat poorly drained soil is on bedrock-controlled landforms on uplands. Most areas are irregular in shape and range from 5 to 15 acres in size.

Typically, the surface layer is very dark grayish brown, very friable silt loam about 4 inches thick. The subsurface layer is light yellowish brown, friable silt loam about 4 inches thick. The subsoil is about 20 inches thick. The upper part of the subsoil is light olive brown, mottled, friable silt loam; the middle part is light olive brown, mottled, firm clay loam; and the lower part is brown, mottled, firm channery loam. The substratum is strong brown, friable channery sandy loam. Sandstone bedrock is at a depth of about 35 inches.

Included with this soil in mapping are small areas where slope is 2 to 5 percent. Also included are small areas of Darien soils that have bedrock at a depth of 40 to 60 inches.

facilities. Houses without basements are better suited to this soil than those with basements. Building sites should be landscaped for surface drainage away from the foundation. Local roads can be improved by using artificial drainage and suitable base material. Wetness also limits use of this soil for recreation. Capability subclass IIIw; woodland suitability subclass 2w.

PsB—Platea silt loam, 2 to 6 percent slopes. This deep, gently sloping, somewhat poorly drained soil is on slightly convex side slopes on the uplands. Most slopes are long with slight irregularities. Many areas are broad and commonly are more than 100 acres in size.

Typically, the surface layer is brown, friable silt loam about 6 inches thick. The subsoil is about 37 inches thick. The upper part of the subsoil is yellowish brown and dark yellowish brown, mottled, firm silty clay loam; and the lower part is a dark yellowish brown, mottled, very firm and brittle, silty clay loam fragipan. The substratum, to a depth of about 60 inches, is brown, mottled, firm silty clay loam and silt loam.

Included with this soil in mapping are small areas of moderately well drained Pierpont soils on knolls. Small areas of eroded soils that have a silty clay loam surface layer are also included. These eroded areas tend to be cloddy and are not so easy to till as this Platea soil.

A perched seasonal high water table is above the very slowly permeable fragipan in winter, spring, and other extended wet periods. This soil dries slowly in spring. Runoff is medium. The rooting zone is mainly 24 to 28 inches deep over the fragipan. Available water capacity is low in the rooting zone. Organic matter content is moderately low. The subsoil above the fragipan is very strongly acid to medium acid, but the surface layer varies widely in reaction, depending on the amount of liming.

About three-fourths of the acreage of this soil has been cleared of woodland. Many of the cleared areas are no longer cultivated. Cultivated areas are used mainly for general farm crops and grapes. This soil has fair potential for farming and good potential for woodland. It has poor potential for building sites and sanitary facilities.

Wetness delays planting and limits the choice of crops. Drained areas are suited to crops, pasture, orchards, and vineyards. Undrained areas can be used for hay and pasture, but minimizing soil compaction and maintaining desirable forage stands are difficult. Subsurface drains should be closely spaced for uniform drainage. Maintaining good tilth is important in reducing surface crusting and erosion. Such practices as using cover crops and crop residue improve organic matter content and tilth, help to control erosion, and increase water infiltration. Rootstock that tolerate wetness should be used when establishing new orchards and vineyards.

This soil is well suited to woodland. Use of harvesting equipment is limited during wet seasons. Plant competition limits reforestation with desirable species.

Seasonal wetness and the very slowly permeable fragipan severely limit the use of this soil for building sites and sanitary facilities (fig. 7). Houses without base-

ments are better suited to this soil than those with basements. Local roads can be improved by using artificial drainage and suitable base material. Some areas are good pond sites. Capability subclass IIIw; woodland suitability subclass 2w.

RhA—Red Hook sandy loam, 0 to 2 percent slopes.

This deep, nearly level, somewhat poorly drained soil is on low beach ridges and offshore bars on the lake plain. Most areas are long and narrow in shape and range from 10 to 500 acres in size.

Typically, the surface layer is very dark grayish brown, very friable sandy loam about 11 inches thick. The subsoil is light olive brown and light brownish gray, mottled, friable sandy loam about 29 inches thick. The substratum, to a depth of about 62 inches, is layered grayish brown and gray, mottled, very friable and loose gravelly sandy loam, loamy sand, and gravelly fine sand.

Included with this soil in mapping are small areas of the moderately well drained Tyner Variant soils on slight rises. Small spots of Painesville soils are included in some areas. Also included in depressions are areas of soils that are similar to Red Hook soils but that are wetter and have a dominantly gray subsoil.

In undrained areas this soil has a seasonal high water table at a depth of 6 to 18 inches during winter, spring, and other extended wet periods. Permeability is moderate or moderately slow. Runoff is slow. Rooting depth is influenced by the water table. In spring, the rooting zone is mainly the upper 15 to 20 inches. Available water capacity is moderate. Organic matter content is moderately low. The subsoil is medium acid to neutral, but the surface layer varies widely in reaction, depending on the amount of liming.

Most drained areas of this soil are used for general farm crops or nursery stock. Undrained soils are in woodland and brush. This soil has fair potential for farming and specialty crops. It has poor potential for building sites and sanitary facilities.

The major limitation for farming is seasonal wetness. Wetness delays planting and limits the choice of crops. Undrained areas can be used for hay and pasture, but maintaining tilth and desirable forage stands is difficult. Drained areas are suited to cultivated crops, hay, pasture, nursery stock, and specialty crops (fig. 8). Subsurface drains lower the water table. This soil has desirable characteristics for digging and balling of nursery stock. Management practices, such as minimum tillage, use of cover crops, incorporating crop residue, and tilling at proper moisture content, improve tilth and increase organic matter content.

Undrained areas of this soil are well suited to woodland and suited to wildlife habitat. Use of harvest equipment is limited during wet seasons. Reforestation with desirable species is difficult because of severe plant competition.

The seasonal high water table severely limits the use of this soil for most sanitary facilities and for building sites. Ditches to control the water table are effective to some

extent if outlets are available. Houses without basements are better suited to this soil than those with basements. Excavation is limited during winter and spring by the high water table and caving of banks. Wetness also limits use of this soil for recreation. Capability subclass IIIw; woodland suitability subclass 2w.

Rv—Riverwash. Riverwash consists of very cobbly and stony areas in the channels of major streams. Most of the rock fragments are shale and sandstone. Included in mapping are a few areas that contain some fine earth material.

Most areas are periodically flooded, depending on the characteristics of the stream. They typically are bare of vegetation, but willow, cattails, marsh grasses, and other water-tolerant plants grow in some areas. Riverwash is used for wildlife habitat. Not placed in a capability subclass or woodland suitability subclass.

St—Stafford loamy fine sand. This deep, nearly level, somewhat poorly drained soil is on low sandy ridges on the lake plain. Slope ranges from 0 to 2 percent. Most areas of this soil are irregular in shape and range from 10 acres to several hundred acres in size.

Typically, the surface layer is dark grayish brown, very friable loamy fine sand about 9 inches thick. The subsoil is about 18 inches thick. The upper part of the subsoil is pale olive, mottled, very friable loamy fine sand; and the lower part is gray, very friable loamy fine sand and loamy coarse sand. The substratum, to a depth of 60 inches, is gray, very friable and loose fine sand and coarse sand.

Included with this soil in mapping are small areas of moderately well drained Elnora soils on the crests of ridges and knolls. Small areas of the very poorly drained Kingsville soils are also included.

A seasonal high water table is near the surface for long periods in winter, spring, and other extended wet periods. Permeability is moderately rapid or rapid. Runoff is slow. Rooting depth is related to the depth of the water table. Drained areas have a deep rooting zone. Available water capacity is very low. The organic matter content is moderately low. The surface layer and subsoil are strongly acid to neutral.

Most of the acreage of this soil is used for cultivated crops or woodland. Some drained areas are used for specialty crops. This soil has fair potential for farming and woodland. It has poor potential for building sites and sanitary facilities.

The major limitations for farming are the seasonal high water table and droughtiness. Wetness delays planting and limits the choice of crops. Undrained areas can be used for growing wetness-tolerant grasses and legumes for hay and pasture, but maintaining desirable forage stands is difficult. Drained areas are suited to crops, pasture, and specialty crops. Nursery stock and vegetables are commonly grown in drained areas. Subsurface drains lower the water table. Subsurface drains may need special measures, such as using graded sand and gravel filters or prefabricated filter materials, to prevent

plugging with fine sand. Because plant nutrients are moderately rapidly leached, this soil generally responds better to smaller but more frequent or more timely applications of fertilizer than to one large application. Using cover crops, incorporating crop residue in the soil, and tilling and harvesting at proper moisture content are important.

This soil is moderately well suited to woodland. The use of logging equipment is limited during wet seasons. Species that tolerate wetness should be selected for reforestation.

The seasonal high water table severely limits the use of this soil for building sites and sanitary facilities. Ditches that control the water table are effective to some extent. Houses without basements are better suited to this soil than those with basements. Excavation is limited during winter and spring by the high water table and caving of banks. Local roads can be improved by using artificial drainage. Wetness and the sandy surface layer limit the use of this soil for recreation. Capability subclass IIIw; woodland suitability subclass 3w.

Sw—Swanton fine sandy loam. This deep, nearly level, poorly drained soil is in relatively broad, elongated strips on the lake plain. Slope ranges from 0 to 2 percent. Most areas range from 5 to 100 acres in size.

Typically, the surface layer is black, friable fine sandy loam about 7 inches thick. The subsoil is about 27 inches thick. The upper part of the subsoil is gray, mottled, friable sandy loam; the middle part is yellowish brown, mottled, friable and loose sandy loam; and the lower part is gray, mottled, friable sandy loam. The substratum, to a depth of about 60 inches, is gray, mottled, firm silty clay.

Included with this soil in mapping are a few small areas of very poorly drained Granby soils in depressions.

A seasonal high water table is near the surface for long periods. Permeability is moderately rapid in the subsoil and slow or very slow in the substratum. Runoff is very slow. Rooting depth is influenced by the water table and generally is restricted by the finer textured substratum. Available water capacity is moderate in the rooting zone. Organic matter content is moderate. The surface layer and subsoil are neutral to strongly acid.

Most of the acreage of this soil is used for crops, pasture, woodland, and natural shrubs. Drained areas are used for specialty crops. This soil has fair potential for building sites and sanitary facilities.

The major limitation for farming is the seasonal high water table. Undrained areas are generally too wet for cultivated crops. Drained areas are suited to crops, pasture, and specialty crops, such as nursery stock and vegetables. Both surface and subsurface drains can be used. Special measures, such as using graded sand and gravel filters or prefabricated filter materials, prevent subsurface drains from plugging with fine sand. Using cover crops, incorporating crop residue, and tilling and harvesting at proper moisture content are important. Controlled grazing reduces soil compaction and increases plant growth.

rigation is needed, especially for specialty crops. Random subsurface drains are needed in the wetter soils for intensive cropping. Because plant nutrients are moderately rapidly leached, this soil generally responds better to smaller but more frequent applications of fertilizer than to one large application.

Only a small acreage of this soil is used for woodland even though it is moderately well suited to woodland.

Seasonal wetness and rapid permeability limit the use of this soil for building sites and sanitary facilities. It is better suited to houses without basements than to those with basements. Mechanical measures may be used to help to prevent wet basements. Because of seepage, contamination of ground water from sanitary facilities is possible. Sloughing is a hazard in excavations. If lawns are seeded during dry periods, they should be mulched and watered. Capability subclass III_s; woodland suitability subclass 3_s.

UdB—Udorthents, gently sloping. These soils are in cut and fill areas. Where the soil material has been removed, the remaining soil is typically similar to the material in the subsoil or substratum of adjacent soils. In fill or disposal areas, the soil material has more variable characteristics because it usually consists of varying amounts of materials from the subsoil and substratum of nearby soils. Slope ranges from 2 to 6 percent.

Typically, these soils are silty clay loam, clay loam, or silt loam in the upper 60 inches. Available water capacity varies, but is mostly low. Permeability is generally slow. The firm and dense surface layer is commonly littered with shale fragments. The soils have poor tilth. Hard rains tend to seal the surface, reducing infiltration and restricting seedling emergence and growth. A seasonal high water table is in some areas, particularly where grading has resulted in depressed or bowlshape areas. The rooting zone is medium acid to mildly alkaline.

Included with these soils in mapping are many small areas where slope is 0 to 2 percent.

Most areas of these soils are at new construction sites. About half of the areas lack any plant cover. A few areas are in hay or pasture. The hazard of erosion is severe in areas that are bare of vegetation. A suitable plant cover is needed to protect these soils from erosion. The suitability of these soils for building sites and sanitary facilities is quite variable. Not placed in a capability subclass or woodland suitability subclass.

UdD—Udorthents, moderately steep. These soils are in cut and fill areas created by road construction. Where the soil material has been removed, the remaining soil is typically similar to the material in the subsoil or substratum of adjacent soils. In fill or disposal areas, the soil material has more variable characteristics and usually consists of varying amounts of material from the subsoil and substratum of nearby soils. Slope ranges from 12 to 18 percent.

Typically, these soils are shaly silty clay loam, clay loam, or silt loam in the upper 60 inches. Rooting depth varies. Available water capacity varies but is mostly low.

Permeability is generally slow. These soils have poor tilth. Hard rains tend to seal the surface, reducing infiltration and restricting seedling emergence and growth. The rooting zone ranges from medium acid to mildly alkaline.

Most of the acreage of these soils is along highways and in borrow pits. About half of the areas lack any plant cover. They are poorly suited to grasses and legumes. The hazard of erosion is severe in areas that are bare of vegetation. A suitable plant cover is needed to reduce erosion. Not placed in a capability subclass or woodland suitability subclass.

Ur—Urban land. Urban land consists of areas 10 acres or more in size that are covered by buildings, pavement, or other man-made surfaces. Included in Urban land are commercial and industrial areas, large factories, shopping centers, warehouses, and railroad yards. Slope ranges from 0 to 6 percent.

Much of the total area is covered by construction, leaving only a limited acreage of natural soil. This results in increased volume and rate of runoff from these areas. Urban land is a potential source of pollution to nearby streams. Not placed in a capability subclass or woodland suitability subclass.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture and woodland, as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities, and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivi-

SOIL SURVEY

TABLE 17.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ad----- Adrian	0-21 21-60	Sapric material- Sand, loamy sand	Pt SP, SM	A-8 A-2, A-3	---	---	---	---	---	---	---
As----- Allis	0-10 10-34 34	Silt loam----- Silty clay loam, silty clay, shaly clay. Weathered bedrock.	ML, CL ML, CL, GC ---	A-6, A-7 A-6, A-7 ---	0 5-10 ---	95-100 65-95 ---	90-100 60-95 ---	80-100 55-95 ---	65-90 45-95 ---	35-45 35-45 ---	10-20 10-20 ---
Bs*. Beaches											
Cg----- Carlisle	0-54 54-72	Sapric material- Silt loam-----	Pt ML, CL	A-8 A-4, A-6	---	---	---	---	---	---	---
CoB, CoD, CoF----- Colonie	0-3 3-65 65-80	Loamy fine sand- Loamy fine sand, fine sand, very fine sand. Fine sand-----	SM SM SM	A-2, A-4 A-2, A-4 A-2	0 0 0	100 100 100	95-100 95-100 95-100	65-85 65-85 60-80	20-40 20-40 20-35	---	NP NP NP
CtA, CtB----- Conneaut	0-9 9-54 54-60	Silt loam----- Silt loam, silty clay loam. Silt loam, silty clay loam.	ML CL-ML, CL ML, CL, CL-ML	A-4, A-6, A-7 A-4, A-6, A-7 A-4, A-6	0 0 0-2	100 95-100 90-100	95-100 95-100 85-100	85-100 85-100 80-90	75-100 75-100 70-85	25-45 22-44 20-35	2-14 4-20 3-14
CwA----- Conneaut	0-8 8-27 27-43 43	Silt loam----- Silt loam, silty clay loam. Silt loam, silty clay loam. Weathered bedrock.	ML CL-ML, CL CL-ML, CL, ML ---	A-4, A-6, A-7 A-4, A-6, A-7 A-4, A-7 ---	0 0 0-1 ---	100 95-100 95-100 ---	95-100 95-100 85-100 ---	85-100 85-100 80-90 ---	75-100 75-100 70-85 ---	24-45 22-44 22-44 ---	2-14 4-20 3-18 ---
CxA----- Conotton	0-10 10-42 42-60	Loam----- Very gravelly sandy loam, gravelly loam, very gravelly clay loam. Sand and gravel-	ML, SM GM, SM, GM-GC, SW-SM GW, GM, SM, SW	A-2, A-4 A-1, A-2, A-4 A-1	0 0-5 0-10	85-100 30-70 25-65	80-100 20-65 15-60	60-90 20-60 10-40	30-70 10-45 0-20	<30 <25 ---	NP-6 NP-10 NP
CyB, CyC----- Conotton	0-10 10-42 42-60	Gravelly loam--- Very gravelly sandy loam, gravelly loam, very gravelly clay loam. Sand and gravel-	SM, ML, GM GM, SM, GM-GC, SW-SM GW, GM, SM, SW	A-2, A-4 A-1, A-2, A-4 A-1	0 0-5 0-10	65-90 30-70 25-65	55-85 20-65 15-60	50-70 20-60 10-40	25-55 10-45 0-20	<30 <25 ---	NP-6 NP-10 NP

See footnote at end of table.

SOIL SURVEY

TABLE 17.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
GoF----- Gosport	0-2	Silty clay loam-	CL	A-6	0-5	90-100	85-100	80-95	70-90	25-40	6-15
	2-27	Silty clay loam, silty clay, shaly silty clay loam.	CH, CL	A-7	0-10	75-100	65-95	65-90	60-85	40-60	15-34
	27-32	Shaly silty clay loam, shaly silty clay.	CL, CH	A-7	0-15	60-95	55-90	55-85	50-80	40-55	18-30
	32	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Gr----- Granby	0-12	Sandy loam-----	SM	A-2	0	100	100	60-70	20-35	---	NP
	12-60	Sand, gravelly loamy coarse sand, fine sand.	SP, SP-SM	A-3, A-2	0	90-100	70-100	35-70	0-25	---	NP
Kf----- Kingsville	0-8	Fine sand-----	SM, SM-SP	A-2	0	100	90-100	80-95	10-35	---	NP
	8-30	Fine sand, loamy fine sand.	SM, SM-SP	A-2	0	100	90-100	80-95	10-35	---	NP
	30-60	Fine sand-----	SM, SW-SM, SP-SM	A-2	0	95-100	85-100	70-90	10-25	---	NP
Lb----- Lobdell	0-10	Silt loam-----	ML, CL-ML, CL	A-4	0	95-100	95-100	80-100	65-90	20-30	NP-8
	10-36 36-96	Loam, silt loam- Stratified sandy loam to silt loam.	ML, SM, CL-ML, CL	A-4 A-4	0 0	90-100 90-100	90-100 85-100	80-95 65-85	60-85 40-80	20-35 15-35	NP-10 NP-10
LrB, LrC----- Lordstown	0-4	Channery silt loam.	ML, GM	A-4	5-20	65-85	50-75	50-75	40-65	<30	NP-4
	4-20	Channery silt loam, channery loam.	ML, GM	A-4	5-10	65-85	50-75	50-75	40-65	<30	NP-4
	20-24	Very channery loam, channery silt loam, very channery fine sandy loam.	ML, GM	A-2, A-4	5-25	40-75	30-70	25-70	15-60	<30	NP-4
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
LxF*: Lordstown part----	0-4	Channery silt loam.	ML, GM	A-4	5-20	65-85	50-75	50-75	40-65	<30	NP-4
	4-24	Channery silt loam, channery loam.	ML, GM	A-4	5-10	65-85	50-75	50-75	40-65	<30	NP-4
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop part.											
MgA, MgB----- Mahoning	0-12	Silt loam-----	ML, CL-ML, CL	A-4, A-6	0-1	95-100	90-100	85-100	65-90	25-40	5-14
	12-41	Silty clay loam, clay loam, silty clay.	CL, CH	A-7, A-6	0-1	95-100	90-100	85-100	75-95	35-55	14-28
	41-72	Clay loam, silty clay loam.	CL	A-6, A-7	0-2	90-100	85-100	80-95	70-90	30-45	12-22

See footnote at end of table.

TABLE 17.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
MhB----- Mahoning	0-7	Silt loam-----	ML, CL-ML, CL	A-4, A-6	0-1	95-100	90-100	85-100	65-90	25-40	5-14
	7-38	Silty clay loam, clay loam, silty clay.	CL, CH	A-7, A-6	0-1	95-100	90-100	85-100	75-95	35-55	14-28
	38-45	Clay loam, silty clay loam.	CL	A-6, A-7	0-2	90-100	85-100	80-95	70-90	30-45	12-22
	45	Weathered bedrock.	---	---	---	---	---	---	---	---	---
Mo----- Minoa	0-12	Fine sandy loam-	ML, SM	A-4	0	95-100	90-100	75-95	40-85	<20	NP-4
	12-52	Silt loam, fine sandy loam, loam.	ML, SM, CL-ML	A-4	0	95-100	90-100	65-95	40-85	<30	NP-8
	52-60	Loamy very fine sand, loamy fine sand, silt loam.	SM, ML, CL-ML	A-2, A-4	0	95-100	90-100	65-95	25-70	<25	NP-5
MtA----- Mitiwanga	0-8	Silt loam-----	ML, CL-ML, CL	A-4	0-2	90-100	85-95	75-90	60-80	25-35	4-10
	8-28	Silt loam, clay loam, channery loam.	CL, ML, CL-ML	A-6, A-4	0-4	80-90	75-90	65-85	55-80	20-40	3-18
	28-35	Loam, clay loam, channery sandy loam.	CL, ML, SM, SC	A-4; A-6	1-8	85-95	65-85	55-75	40-60	20-35	3-15
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Or----- Orrville	0-7	Silt loam-----	ML, CL-ML, CL	A-4	0	100	95-100	90-100	65-80	22-35	4-10
	7-28	Silt loam, loam, gravelly loam.	CL, ML, CL-ML	A-4, A-6	0-2	95-100	60-100	55-95	50-90	20-40	2-16
	28-62	Silt loam, sandy loam, gravelly loam.	ML, CL, SM, SC	A-4	0-2	95-100	60-100	45-85	35-75	15-35	NP-10
OsA, OsB----- Oshtemo	0-8	Sandy loam-----	SM, SM-SC	A-2, A-4	0	95-100	60-95	60-70	25-40	15-25	2-7
	8-22	Sandy loam, sandy clay loam, gravelly sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	95-100	60-95	60-85	25-45	12-30	2-16
	22-40	Loamy sand, gravelly loamy sand.	SM, SP-SM	A-2	0	85-95	60-95	55-70	10-15	---	NP
	40-60	Stratified coarse sand to gravel, gravelly loamy sand.	SP-SM, GP, SP, GP-GM	A-1, A-2, A-3	0-5	40-90	35-85	20-60	0-10	---	NP
OtB----- Otisville	0-6	Gravelly loamy sand.	SM, GM, SW-SM, GW-GM	A-1, A-2	0-10	55-80	50-75	25-50	10-30	---	NP
	6-30	Gravelly loamy sand, gravelly loamy fine sand, very gravelly sand.	SM, SP	A-1	0-10	45-65	40-60	20-50	3-25	---	NP
	30-60	Very gravelly sand.	GP, SP, GW-GM, SP-SM	A-1	0-10	35-60	30-55	15-40	0-10	---	NP

See footnote at end of table.

SOIL SURVEY

TABLE 17.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
Pa----- Painesville	0-9	Fine sandy loam-	SM, SC, ML, CL	A-4, A-2	0	95-100	90-100	60-85	30-60	20-33	NP-10
	9-30	Fine sandy loam, sandy loam, loam.	SM, ML, SC, CL	A-4, A-2, A-6	0	90-100	85-100	60-85	30-65	20-40	NP-15
	30-72	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	85-95	80-95	75-90	70-85	22-40	4-15
PeB, PeB2, PeC2, PeD2----- Pierpont	0-8	Silt loam-----	ML, CL-ML	A-4	0-5	95-100	90-100	80-95	75-90	25-40	4-10
	8-24	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4	0-5	95-100	90-100	80-95	75-90	26-40	6-18
	24-40	Silty clay loam, clay loam.	CL	A-6	0-5	95-100	85-95	80-90	70-85	32-40	12-20
	40-60	Silt loam, silty clay loam, clay loam.	CL, ML, CL-ML	A-4, A-6	0-5	95-100	85-95	75-85	65-80	20-40	3-20
Po*. Pits											
PsA, PsB----- Plateau	0-6	Silt loam-----	ML, CL-ML, CL	A-4	0-5	95-100	90-100	85-100	80-95	22-35	4-10
	6-26	Silty clay loam, clay loam, silt loam.	CL, CL-ML	A-4, A-6	0-5	95-100	90-100	85-100	80-95	22-40	6-20
	26-43	Silt loam, clay loam, silty clay loam.	CL, CL-ML	A-4, A-6	0-5	90-100	80-95	75-90	70-90	22-40	6-20
	43-60	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0-5	85-95	80-95	70-90	70-85	22-40	6-20
RhA----- Red Hook	0-11	Sandy loam-----	SM, OL	A-2, A-4	0-5	80-95	75-90	50-75	30-50	15-35	2-4
	11-40	Loam, sandy loam, gravelly sandy loam.	ML, SM, GM, GP-GM	A-1, A-2, A-4	0-5	30-90	25-85	15-80	10-70	20-30	2-4
	40-72	Gravelly loam, very gravelly sandy loam, gravelly sand.	GM, SM, GP-GM	A-1, A-2, A-4	5-10	30-65	25-60	15-55	5-50	20-30	2-4
Rv*. Riverwash											
St----- Stafford	0-9	Loamy fine sand-	SM	A-2, A-4	0	95-100	90-100	60-95	20-45	---	NP
	9-24	Loamy fine sand, fine sand.	SM, SM-SP	A-2, A-4	0	95-100	90-100	60-95	10-45	---	NP
	24-60	Fine sand, sand, loamy coarse sand.	SM, SW-SM, SM-SP	A-2, A-1, A-3	0	90-100	70-100	45-80	5-35	---	NP
Sw----- Swanton	0-7	Fine sandy loam-	SM, ML	A-2, A-4	0	100	95-100	60-95	30-65	---	NP
	7-34	Fine sandy loam, very fine sandy loam, sandy loam.	SM, ML	A-2, A-4	0	100	95-100	60-95	30-65	---	NP
	34-60	Silty clay loam, silty clay, clay.	CL, ML, CH	A-7, A-6	0	100	100	90-100	75-95	35-45	15-20
Tg----- Tioga	0-6	Loam-----	ML, SM	A-4	0	100	95-100	65-95	40-85	<15	NP-4
	6-32	Silt loam, loam, gravelly fine sandy loam.	SM, GM, ML	A-1, A-2, A-4	0	55-100	50-100	35-100	20-90	<15	NP-2
	32-60	Loam, coarse sand, gravelly coarse sand.	GW-GM, GM, SM, ML	A-1, A-2, A-4	0-10	35-100	30-100	15-90	5-75	<15	NP-2

See footnote at end of table.

TABLE 17.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Th----- Tioga Variant	0-12	Silt loam-----	ML	A-4	0	100	95-100	65-95	50-85	25-35	2-10
	12-34	Silt loam, loam, fine sandy loam.	ML, SM, CL, SC	A-4, A-6	0	100	95-100	65-95	45-85	25-35	2-12
	34-60	Silt loam, loam, fine sandy loam.	ML, SM	A-4	0-5	90-100	80-100	55-85	40-75	<35	NP-8
TyB, TyC----- Tyner	0-8	Loamy sand-----	SM	A-2-4	0	90-100	85-95	50-75	15-25	---	NP
	8-56	Loamy sand, sand	SM, SP-SM	A-2-4, A-3	0	90-100	85-95	50-70	15-25	---	NP
	56-66	Fine sand, sand-	SM, SP-SM	A-3, A-2-4	0-5	80-95	70-90	50-70	5-25	---	NP
TzA----- Tyner Variant	0-8	Sandy loam-----	SM	A-2-4	0	90-100	80-100	55-70	20-35	---	NP
	8-32	Sandy loam, loamy sand, gravelly loamy sand.	SM	A-2-4	0	85-100	75-100	50-75	15-30	---	NP
	32-60	Loamy coarse sand, coarse sand, gravelly sand.	SM, SP-SM	A-2-4, A-1, A-3	0-5	80-95	70-95	45-70	5-25	---	NP
UdB*, UdD*, Udorthents											
Ur*. Urban land											

* See map unit description for the composition and behavior of the map unit.

TABLE 19.--SOIL AND WATER FEATURES

[Absence of an entry indicates the feature is not a concern. The definitions of "flooding" and "water table" in the Glossary explain such terms as "rare," "brief," and "perched." The symbol > means greater than]

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	
					<u>Ft</u>			<u>In</u>		
Ad----- Adrian	A/D	Frequent----	Long-----	Nov-May	0-1.0	Apparent	Nov-May	>60	---	High.
As----- Allis	D	None-----	---	---	0.0-1.0	Perched	Nov-Jun	20-40	Rippable	Moderate.
Bs*. Beaches										
Cg----- Carlisle	A/D	Frequent----	Long-----	Nov-May	0-1.0	Apparent	Sep-Jun	>60	---	High.
CoB, CoD, CoF----- Colonie	A	None-----	---	---	>6.0	---	---	>60	---	Low.
CtA----- Conneaut	C	None-----	---	---	0-1.0	Perched	Nov-Jun	>60	---	High.
CtB----- Conneaut	C	None-----	---	---	0.5-1.5	Perched	Nov-Jun	>60	---	High.
CwA----- Conneaut	C	None-----	---	---	0-0.5	Perched	Nov-Jun	40-60	Rippable	High.
CxA, CyB, CyC----- Conotton	B	None-----	---	---	>6.0	---	---	>60	---	Moderate.
DaA, DaB, DaC----- Darlen	C	None-----	---	---	0.5-1.5	Perched	Dec-May	40-60	Rippable	High.
Dc*, Du*. Dumps										
ElB, ElC, ElD, ElF----- Ellsworth	C	None-----	---	---	1.5-3.0	Perched	Nov-May	>60	---	High.
EmC, EmD----- Ellsworth	C	None-----	---	---	1.5-3.0	Perched	Nov-May	40-60	Rippable	High.
EnB----- Elnora	B	None-----	---	---	1.5-2.0	Apparent	Feb-May	>60	---	Moderate.
EuA----- Euclid	C	Rare-----	---	---	0.5-1.5	Perched	Nov-Jun	>60	---	High.
FcA----- Fitchville	C	None-----	---	---	0.5-1.5	Perched	Nov-Jun	>60	---	High.
GfA, GfB----- Glenford	C	None-----	---	---	1.5-3.0	Perched	Nov-May	>60	---	High.
GoF----- Gosport	C	None-----	---	---	>6.0	---	---	20-40	Rippable	Moderate.
Gr----- Granby	A/D	None-----	---	---	0-1.0	Apparent	Nov-Jun	>60	---	Moderate.
Kf----- Kingsville	C	None-----	---	---	0-1.0	Apparent	Jan-Apr	>60	---	Moderate.
Lb----- Lobdell	B	Common-----	Brief-----	Jan-Apr	1.5-3.0	Apparent	Dec-Apr	>60	---	High.
LrB, LrC----- Lordstown	C	None-----	---	---	>6.0	---	---	20-30	Hard	Moderate.

See footnote at end of table.

TABLE 19.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth <u>Ft</u>	Kind	Months	Depth <u>In</u>	Hardness	
LxF*: Lordstown part--- Rock outcrop part.	C	None-----	---	---	>6.0	---	---	20-30	Hard	Moderate.
MgA, MgB----- Mahoning	D	None-----	---	---	0.5-1.5	Perched	Nov-Jun	>60	---	Moderate.
MhB----- Mahoning	D	None-----	---	---	0.5-1.5	Perched	Nov-Jun	40-60	Rippable	Moderate.
Mo----- Minoa	C	None-----	---	---	0.5-1.5	Apparent	Feb-Apr	>60	---	High.
MtA----- Mitiwanga	C	None-----	---	---	0.5-1.5	Perched	Nov-Jun	20-40	Hard	High.
Or----- Orrville	C	Common-----	Very brief to brief.	Nov-May	0.5-1.5	Perched	Nov-Jun	>60	---	High..
OsA, OsB----- Oshtemo	B	None-----	---	---	>6.0	---	---	>60	---	Low.
OtB----- Otisville	A	None-----	---	---	>6.0	---	---	>60	---	Low.
Pa----- Painesville	C	None-----	---	---	0.5-1.5	Perched	Jan-Apr	>60	---	High.
PeB, PeB2, PeC2, PeD2----- Pierpont	C	None-----	---	---	1.5-3.0	Perched	Jan-Apr	>60	---	High.
Po*. Pits										
PsA, PsB----- Platea	C	None-----	---	---	0.5-2.0	Perched	Jan-Apr	>60	---	High.
RhA----- Red Hook	C	None-----	---	---	0.5-1.5	Apparent	Dec-May	>60	---	High.
Rv*. Riverwash										
St----- Stafford	C	None-----	---	---	0.5-1.5	Apparent	Jan-May	>60	---	Moderate.
Sw----- Swanton	B/D	None-----	---	---	0-1.0	Apparent	Nov-May	>60	---	High.
Tg----- Tioga	B	Common-----	Very brief to brief.	Jan-Apr	3.0-6.0	Apparent	---	>60	---	Moderate.
Th----- Tioga Variant	B	Rare-----	---	---	3.0-6.0	Apparent	Jan-May	>60	---	Moderate.
TyB, TyC----- Tyner	A	None-----	---	---	>6.0	---	---	>60	---	Low.
TzA----- Tyner Variant	A	None-----	---	---	1.5-3.0	Apparent	Jan-May	>60	---	Moderate.
UdB*, UdD*. Udorthents										
Ur*. Urban land										

* See map unit description for the composition and behavior of the map unit.

TABLE 20.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of this taxadjunct that are outside the range of the series]

Soil name	Family or higher taxonomic class
Adrian-----	Sandy or sandy-skeletal, mixed, euic, mesic Terric Medisaprists
Allis-----	Fine, illitic, acid, mesic Aeric Haplaquepts
Carlisle-----	Euic, mesic Typic Medisaprists
Colonié-----	Mixed, mesic Alfic Udipsamments
Conneaut-----	Fine-silty, mixed, nonacid, mesic Aeric Haplaquepts
Conotton-----	Loamy-skeletal, mixed, mesic Typic Hapludalfs
Darien-----	Fine-loamy, mixed, mesic Aeric Ochraqualfs
Ellsworth-----	Fine, illitic, mesic Aquic Hapludalfs
Elnora-----	Mixed, mesic Aquic Udipsamments
Euclid-----	Fine-silty, mixed, nonacid, mesic Aeric Haplaquepts
Fitchville-----	Fine-silty, mixed, mesic Aeric Ochraqualfs
Glenford-----	Fine-silty, mixed, mesic Aquic Hapludalfs
Gosport-----	Fine, illitic, mesic Typic Dystrochrepts
*Granby-----	Sandy, mixed, mesic Typic Haplaquolls
Kingsville-----	Mixed, mesic Mollic Psammaquents
Lobdell-----	Fine-loamy, mixed, mesic Fluvaquentic Eutrochrepts
Lordstown-----	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Mahoning-----	Fine, illitic, mesic Aeric Ochraqualfs
Minoa-----	Coarse-loamy, mixed, mesic Aquic Dystric Eutrochrepts
*Mitiwanga-----	Fine-loamy, mixed, mesic Aeric Ochraqualfs
Orrville-----	Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Oshtemo-----	Coarse-loamy, mixed, mesic Typic Hapludalfs
Otisville-----	Sandy-skeletal, mixed, mesic Typic Udorthents
Painesville-----	Fine-loamy, mixed, nonacid, mesic Aeric Haplaquepts
Pierpont-----	Fine-silty, mixed, mesic Aqueptic Fragiudalfs
Platea-----	Fine-silty, mixed, mesic Aeric Fragiaqualfs
Red Hook-----	Coarse-loamy, mixed, nonacid, mesic Aeric Haplaquepts
*Stafford-----	Mixed, mesic Typic Psammaquents
*Swanton-----	Coarse-loamy over clayey, mixed, nonacid, mesic Aeric Haplaquepts
Tioga-----	Coarse-loamy, mixed, mesic Dystric Fluventic Eutrochrepts
Tioga Variant-----	Coarse-loamy, mixed, mesic Fluventic Dystrochrepts
Tyner-----	Mixed, mesic Typic Udipsamments
Tyner Variant-----	Sandy, mixed, mesic Aquic Dystrochrepts

APPENDIX D

Midwest Materials Gas & Oil Wells

MIDWEST MATERIALS GAS AND OIL WELLS



Property lines are graphic representations and are **NOT** survey accurate.
Lake County GIS Dept. / Lake County Tax Map Dept., 105 Main Street, Painesville, OH

1 inch = 200 feet
Creation Date: July 9, 2018

— FORCE MAIN - SEWER ALIGNMENT
— GAS - OIL WELLS (TYP.)

Norshar Company Inc. 3687 Shepard Road, Perry, OH 44081



B1	Steel Storage Processing
B2	Storage
B3	Lab, Fleet Maintenance Garage
B4	Maintenance Building
B5	Executive/Shift Offices
B6	Admin./General Offices

	Argon	Acetylene	Oxygen	Propane
	45 Gal	#3	#138	#337
C1	Gas Cylinders	0	2	2
C2	Gas Cylinders	0	1	1
C3	Gas Cylinders	0	1	0
C4	Gas Cylinders	0	1	0
C5	Gas Cylinders	0	1	0
C6	Gas Cylinders	0	1	0
C7	Gas Cylinders	0	1	0
C8	Gas Cylinders	0	1	0
C9	Gas Cylinders	0	1	0

G1	Natural Gas Line from Dominion EOG
G2	Natural Gas Line to B1 & B6
G3	Natural Gas Line from T1
G4	Natural Gas Lines to B2
G5	Dominion EOG Line
G6	Natural Gas Line from T2
G7	Natural Gas Line from T3
G8	Natural Gas Line from W16 - W11 Sub Meter Station
G9	Natural Gas Sub Meter Station

M1	Mix. Used Diesel Engine Oil
M2	Mix. Hydraulic Oil
M3	Mix. Hydraulic Oil
M4	Mix. Rust Preventative
M5	Mix. Hydraulic Oil
M6	Mix. Hydraulic Oil
M7	Mix. Hydraulic Oil
M8	Mix. Diesel Exhaust Fluid

W1	Gas Well, Norshar #1
W2	Gas Well, Norshar #2
W3	Gas Well, Norshar #3
W4	Gas Well, Norshar #4
W5	Gas Well, Norshar #5
W11	Gas Well, Norshar #11
W12	Gas Well, Norshar #12
W13	Gas Well, Norshar #13
W14	Gas Well, Norshar #14
W15	Gas Well, Norshar #15
W16	Gas Well, Norshar #16

T1	100 Bbl & 210 bbl
T2	2 x 100 bbl
T3	2 x 100 bbl
T4	Above Ground: 10M Gal. Diesel and 2M Gal. Unleaded Gasoline
T5	Above Ground: 500 Gal. Diesel Oil

Signature _____ Title _____ Name _____ Date _____

APPENDIX E

Ohio EPA PTI



Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

January 28, 2019

Perry Joint Economic Develop. District
Attn: Robert J. Dawson

3740 Center Rd.
Perry, OH 44081

RE: Perry Joint Economic Develop. District
Permit-Long Term
Approval
Surface Water Permit to Install
Lake
DSWPT11249351

Subject: Perry Joint Economic Development District Midwest Materials Sanitary Sewer Improvements,
Perry Twp
Plans Received on October 12, 2018
Plans Revised on January 15, 2019
From: CT Consultants - Mentor

Ladies and Gentlemen:

Enclosed is an approved Ohio EPA Permit to Install. This permit contains several conditions and restrictions; I urge you to read it carefully. A general condition of your permit states that issuance of the permit does not relieve you of the duty of complying with all applicable federal, state, and local laws, ordinances, and regulations. You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Treasurer State of Ohio", which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address: Environmental Review Appeals Commission, 30 East Broad Street, 4th Floor, Columbus, OH 43215. If you have any questions, please contact the Ohio EPA District Office.

Ohio EPA has developed a customer service survey to get feedback from regulated entities that have contacted Ohio EPA for regulatory assistance, or worked with the Agency to obtain a permit, license or other authorization. Ohio EPA's goal is to provide our customers with the best possible customer service, and your feedback is important to us in meeting this goal. Please take a few minutes to complete this survey and share your experience with us at <http://www.surveymonkey.com/s/ohioepacustomersurvey>. If you have any questions, please contact the Ohio EPA district office to which you submitted your application.

Sincerely,

Kevin J. Fowler, Supervisor
Permit Processing Unit, Division of Surface Water

KJF/bp 9489 0090 0027 6025 8123 65

Enclosure

CERTIFIED MAIL

cc: Northeast District Office CT Consultants – Mentor Lake County Department of Utilities

Ohio Environmental Protection Agency

Ohio EPA JAN 28 '19
Entered Directors Journal

Permit to Install

Application No: 1249351

Applicant Name: Perry Joint Economic Develop. District
Address: 3740 Center Rd.
City: Perry
State Zip: OH 44081

Person to Contact: Robert J. Dawson
Telephone: 440-259-5140

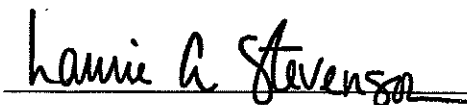
Description of Proposed Source: Perry Joint Economic Development District Midwest Materials
Sanitary Sewer Improvements, Perry Twp, Lake

Issuance Date: January 28, 2019

Effective Date: January 28, 2019

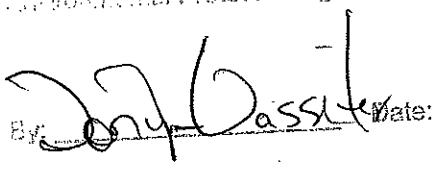
The above named entity is hereby granted a permit to install for the above described source pursuant to Chapter 3745-42 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source of environmental pollutants will operate in compliance with applicable state and federal laws and regulations. Issuance of this permit does not constitute expressed or implied assurance that, if constructed or modified in accordance with those plans and specifications, the above described source of pollutants will be granted the necessary operating permits. This permit is granted subject to the following conditions attached hereto.

Ohio Environmental Protection Agency



Laurie A. Stevenson
Director
P.O. Box 1049
50 West Town Street, Suite 700
Columbus, OH 43216-1049

I certify this to be a true and accurate copy of the
original documents as filed in the records of the Ohio
Environmental Protection Agency.

By:  Date: 1/28/19

This permit shall expire if construction has not been initiated by the applicant within eighteen months of the effective date of this permit. By accepting this permit, the applicant acknowledges that this eighteen month period shall not be considered or construed as extending or having any effect whatsoever on any compliance schedule or deadline set forth in any administrative or court order issued to or binding upon the permit applicant, and the applicant shall abide by such compliance schedules or deadlines to avoid the initiation of additional legal action by the Ohio EPA.

The director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, examining records, or reports pertaining to the construction, modification, or installation of the above described source of environmental pollutants.

Issuance of this permit does not relieve you of the duty of complying with all applicable federal, state, and local laws, ordinances, and regulations.

Any well, well point, pit or other device installed for the purpose of lowering the ground water level to facilitate construction of this project shall be properly abandoned in accordance with the provisions of Section 3745-9-10 of the Ohio Administrative Code or in accordance with the provisions of this plan ~~or as directed by the Director or his representative. For more information please contact: Division of~~ Drinking and Ground Water - Lazarus Government Center, 50 West Town Street, Suite 700, Columbus, Ohio 43215 (614) 644-2752.

Any person installing any well, well point, pit or other device used for the purpose of removing ground water from an aquifer shall complete and file a Well Log and Drilling Report form with the Ohio Department of Natural Resources, Division of Water, within 30 days of the well completion in accordance with the Ohio Revised code Section 1521.01 and 1521.05. In addition, any such facility that has a capacity to withdraw waters of the state in an amount greater than 100,000 gallons per day from all sources shall be registered by the owner with the chief of the Division of Water, Ohio Department of Natural Resources, within three months after the facility is completed in accordance with Section 1521.16 of the Ohio Revised Code. For copies of the necessary well log, drilling report, or registration forms, please contact:

Ohio Department of Natural Resources
2045 Morse Road Bldg. E
Columbus, OH 43229-6693
(614) 265-6717

1. The proposed wastewater disposal system shall be constructed in strict accordance with the plans and application approved by the director of the Ohio Environmental Protection Agency. There shall be no deviation from these plans without the prior express, written approval of the agency. Any deviations from these plans or the above conditions may lead to such sanctions and penalties as provided for under Ohio law. Approval of these plans and issuance of this permit does not constitute an assurance by the Ohio Environmental Protection Agency that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources are inadequate or cannot meet applicable standards.

2. If the construction area for this project is one acre or more, or is part of a larger development that is one acre or more, the applicant must submit a Notice of Intent (NOI) for coverage under the general construction stormwater permit to Ohio EPA at least 21 days prior to the start of construction of this project.

3. For projects involving construction or placement of fill in a stream or wetland, the applicant shall contact the appropriate district of the U.S. Army Corps of Engineers for a determination regarding potential impacts to water of the state as well as the requirements for obtaining, if necessary, certification. The applicant shall acquire a Section 404 permit and 401 water quality certification, if needed, before impacting any waters of the state as part of this project.
4. The Perry Joint Economic Development District shall be responsible for proper operation and maintenance of the sewerage system.
5. For parallel installation, a minimum horizontal separation of 10 feet between gravity sanitary sewers and any existing or proposed potable water mains shall be maintained. The distance shall be measured edge to edge.
6. Where gravity sewer lines cross existing or proposed water mains, the gravity sewer lines shall be laid below the water mains to provide a separation of at least 18 inches between the invert of the water main and the crown of the gravity sewer. The lines shall be laid so that the gravity sewer line joints are as far as possible from the water main joints.
7. The operation of the sewerage system shall be under the responsible charge of a certified operator ~~having the proper certificate issued under Chapter 3745-7-05 of the Ohio Administrative Code.~~
8. This permit to install applies only to the wastewater disposal system listed above. The installation of drinking water supplies, air contaminant sources, or solid waste disposal facilities will require the submittal of a separate application to the director.
9. Provisions shall be made for proper operation of the wastewater pumping facilities.
10. Roof drains, foundation drains, and other clean water connections to the sanitary sewer shall be prohibited by enforcement of legally adopted rules by the authority regulating the use of sanitary sewers.
11. Sewer and manhole construction joints shall conform to standards of the Ohio Environmental Protection Agency.
12. When flexible pipe (PVC, ABS, HDPE, etc.) is used it must be tested for maximum deflection of 5 percent after the final backfill has been in place no less than 30 days to permit stabilization of the soil-pipe system. Pipe with a stiffness of 200 p.s.i. or greater need not be tested for deflection if all pipe between manholes is less than 12 feet below final grade.

The rigid ball or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM specification, including the appendix, to which the pipe is manufactured. The test shall be performed without mechanical pulling devices.

All pipe, flexible and rigid, shall be subject to a leakage test. The leakage exfiltration/infiltration test shall be a hydrostatic or air test. The hydrostatic leakage test shall not exceed 100 gallons per inch of pipe diameter per mile per day for any section of the system. If an air test is used, the test shall conform to the test procedure outlined in the ASTM standards for the material of pipe used.

The leakage and deflection test shall be conducted under the supervision of a professional engineer. A representative of the professional engineer may supervise the deflection and leakage tests, but the professional engineer must sign off on the results of the deflection and leakage tests. Results of the deflection and leakage tests shall be kept on file at least 180 days by the entity responsible for the sewerage system, and shall be available upon request by the Ohio Environmental Protection Agency.

Any lines which fail the deflection or leakage test must be repaired and retested until they meet the requirements which have been set forth within this condition.

13. All gravity sanitary sewers which are located in well field areas shall comply with and be tested as specified in Ohio Environmental Protection Agency Guideline, Gravity Sewers in Well Field Areas, February 1983.

14. The permit to install is not an authorization to discharge pollutants to waters of the state. Pursuant to Chapter 6111 of the Ohio Revised Code, the applicant shall apply for a permit to discharge (NPDES) 180 days prior to any discharge of pollutants to waters of the state.

15. Fugitive dust generated by this sewer construction project shall be controlled as specified in OAC 3745-17-08 (B).

REPORT ON A PERMIT-TO-INSTALL APPLICATION (PTI APP. #1249351) AND DETAILED PLANS OF SANITARY SEWER IMPROVEMENTS FOR MIDWEST MATERIALS, LOCATED IN PERRY TOWNSHIP, LAKE COUNTY, OHIO.

On October 12, 2018, detailed plans of the above referenced project were received by the Northeast District Office of the Ohio Environmental Protection Agency. The plans were prepared on behalf of the applicant, Perry Joint Economic Development District (JEDD), by CT Consultants, Inc. Revisions were requested with the final revisions being received on January 15, 2019.

The project is located at 3687 Shepard Road in Perry, Ohio and includes the installation of sanitary sewers to service a 66.342-acre parcel. The sanitary sewer project will consist of the installation of approximately:


- 270 lineal feet (LF) of 6-inch diameter gravity PVC pipe (ASTM D3034) with a minimum slope of 1.00%
- 125 lineal feet (LF) of 8-inch diameter gravity PVC pipe (ASTM D3034) with a minimum slope of 0.40% and a maximum manhole spacing of 77ft
- 549 lineal feet (LF) of 8-inch diameter gravity ductile iron pipe (ASTM A746) with a minimum slope of 0.40% and a maximum manhole spacing of 316ft
- 3,780 lineal feet (LF) of 2-inch diameter force main HDPE pipe

The applicable forms are complete and are submitted with the plans. The stamp of approval from the designated sewer authority, Lake County, was included on the plans. The complete force main will be owned and operated by Perry JEDD. Sewage will be treated at the Lake County Madison WWTP. The estimated project cost is \$585,000.

Summary

Detailed plans of the above referenced project appear satisfactory and it is recommended that they be approved subject to the standard conditions.

Prepared by:



Destinie Rivera
Assistant to the District Engineer
Division of Surface Water

Reviewed by:



Richard Blasick, P.E.
Environmental Manager
Division of Surface Water

DR:RB:cla
January 18, 2019

OHIO EPA - DSW
2019 JAN 22 PM 2:16

APPENDIX F

Gosel Sanitary Sewer Easement

OCTOBER 29, 2018

**SANITARY SEWER
EASEMENT
FROM
GOSOL, LLC, A LIMITED LIABILITY COMPANY
TO
THE PERRY JOINT ECONOMIC DEVELOPMENT DISTRICT
BEING PART OF P.P. NO. 04-A-043-0-00-024-0**

KNOW ALL MEN BY THESE PRESENTS that Gasol, LLC, who claims title by instrument recorded in Document No. 2012R029797 of the Lake County Records, hereinafter referred to as the "Grantor(s)", for and in consideration of the sum of Five Hundred Dollars (\$500.00) and other good and valuable consideration, the receipt of which is hereby acknowledged do/does grant and release to the Perry Joint Economic Development District, an Ohio political subdivision, Grantee herein, its successors and assigns the right to construct, repair, replace, relay, maintain, operate and inspect a sanitary sewer line and necessary appurtenances thereto, and forever to have and to hold such right for the purposes and under the conditions herein set for across the following real estate in the Township of Perry, Lake County, State of Ohio and described as follows:

Situated in the Village of Perry, County of Lake, and State of Ohio and known as being an easement for sanitary sewer purposes over, across, and through a part of Original Perry Township Lot 45 in the Eleventh Township of the Seventh Range in the Connecticut Western Reserve and a part of Lot No. 1 in the C.C. St. John Survey of part of said Original Lot 45 as shown by plat recorded in Volume A, Pages 62 and 63 of Lake County Plat Records and is bounded and described as follows:

Beginning at an iron pin found (5/8" McSteen Cap) in the existing westerly right-of-way line of Maple Street (50 feet wide) at its intersection with the northerly line of said Original Lot 45, the same being the southerly line of land (PPN 04-A-999-0-00-300-A) of Norfolk Southern Combined Railroad, successor in interest to Fairport, Painesville and Eastern Rail Road Company which claims title by or through instrument recorded in Volume 699, Page 436 of the Lake County Records;

Thence South 12° 18' 08" East, along said westerly right-of-way line of Maple Street, 23.58 feet to the principal point of beginning of the following described easement;

COURSE I Thence South 12° 18' 08" East continuing along said existing westerly right-of-way line of Maple Street, 16.49 feet to its intersection with the northerly right-of-way line of the mainline of the above said Norfolk Southern Combined Railroad (formerly known as New York, Chicago & St. Louis Rail Road Co.);

- COURSE II Thence South 65° 05' 10" West, along said northerly right-of-way line of the mainline of Norfolk Southern Combined Railroad, 16.40 feet to a point therein;
- COURSE III Thence South 77° 25' 46" West, 123.75 feet to a point;
- COURSE IV Thence North 80° 04' 14" West, 126.98 feet to a point;
- COURSE V Thence North 57° 34' 14" West, 48.47 feet to a point in the northerly line of Parcel No. 2 (PPN 04-A-043-0-00-010-0) of land conveyed to Gosol, LLC by instrument recorded in Document No. 2012R029797 of Lake County Records;
- COURSE VI Thence North 76° 53' 52" East, along said northerly line of land of Gosol, LLC, a distance of 11.44 feet to the westerly line of the aforesaid Lot No. 1 in the C.C. St. John Survey;
- COURSE VII Thence North 12° 58' 15" West, along said westerly line of Lot No. 1, a distance of 16.86 feet to an iron pin found (5/8" McSteen Cap) at its intersection with the aforesaid northerly line of Original Lot 45 and the southerly line of land of Norfolk Southern Combined Railroad;
- COURSE VIII Thence South 57° 34' 14" East, by a line which is parallel with COURSE V in the easement herein described and distant 20.00 feet northwesterly by normal measure therefrom, a distance of 48.48 feet to a point;
- COURSE IX Thence South 80° 04' 14" East, by a line which is parallel with COURSE IV in the easement herein described and distant 20.00 feet northeasterly by normal measure therefrom, a distance of 119.02 feet to a point;
- COURSE X Thence North 77° 25' 46" East, by a line which is parallel with COURSE III in the easement herein described and distant 20.00 feet northerly by normal measure therefrom, a distance of 135.87 feet to the principal point of beginning and containing 0.139 acres (6,061 square feet) of land as surveyed and described in August 2018 by Thomas M. Meeks, Ohio Professional Survey No. 8674 of CT Consultants, Inc. Registered Engineers and Surveyors.

Prior instrument reference Document No. 2012R029797 of the Lake County Records.

The above described area is a part of Lake County Auditor's Parcel No. 04-A-043-0-00-024-0.

Bearings contained herein are for project use only and are based on Ohio State Plane (North Zone) Coordinate System, Horizontal Datum NAD83 (2011).

The above described easement burdens a portion of property designated as Lake County Auditor's Permanent Parcel No. 04-A-043-0-00-024-0. (See map attached hereto as Exhibit A)

The said Grantor(s) to fully use and enjoy the said premises, except for the purposes granted to the said Grantee and provided the said Grantor(s) shall not construct nor permit to be constructed any house, structures or obstructions on or over or that will interfere with the construction, maintenance or operation of the sanitary sewer line or appurtenances constructed hereunder, and will not change the grade over such sanitary sewer line. This grant is made on the express conditions that: (1) said Perry Joint Economic Development District, Lake County, Ohio, shall as far as possible after the construction of said sanitary sewer and all subsequent alterations or repairs thereunto, restore the premises to its prior condition after the installation, repair, maintenance, and/or subsequent removal of the sanitary sewer, (2) Perry Joint Economic Development District, Lake County, Ohio shall not interfere or obstruct with the operations of Precision Polymer Casting, LLC due to construction or repair of the sanitary sewer line and (3) Construction shall be completed within thirty (30) business days upon construction commencement of the sanitary sewer line.

The Grantor(s) further covenant with the Grantee, its successors and assigns that they are well seized of said premises as an estate in fee simple and that it is free from all encumbrances and they will warrant and defend their title to said premises against all claims.

In Testimony Whereof said In Testimony Whereof said Gosol, LLC by and through Terry Capuan, its authorized agent sets their hand to this Easement, this 29 day of October, A.D. 2018.

GRANTOR:
Gosol, LLC

Terry Capuan
By: TERRY CAPUAN
Its: authorized agent

STATE OF OHIO)
) ss
COUNTY OF Geauga)

Before me, a Notary Public in and for said County and State, personally appeared the above named Gosol, LLC by and through Terry Capuan, its authorized agent, the Grantor who acknowledged that they/he/she did sign the foregoing instrument and that the same is their/his/her free act and deed.

In Testimony Whereof, I have hereunto set my hand and official seal, at Geauga County this 29th day of October, A.D. 2018.

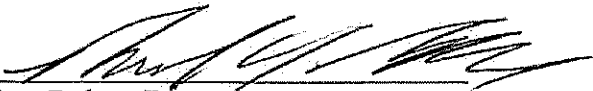


DEONTAE D. WILLIAMS
Notary Public, State of Ohio
My Comm. Expires Jan. 04, 2021
Recorded in Cuyahoga County

Deontae D. Williams
NOTARY PUBLIC

In Testimony Whereof said Perry Joint Economic Development District, by and through Robert Dawson, its: Chairman of the Board of Trustee sets its hand to this Easement, this 5th day of November, A.D. 2018.

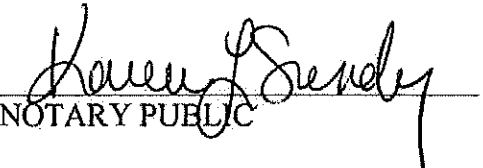
GRANTEE:
Perry Joint Economic Development District


By: Robert Dawson
Its: Chairman of the Board of Trustee of the
Perry Joint Economic Development District

STATE OF OHIO)
) ss
COUNTY OF LAKE)

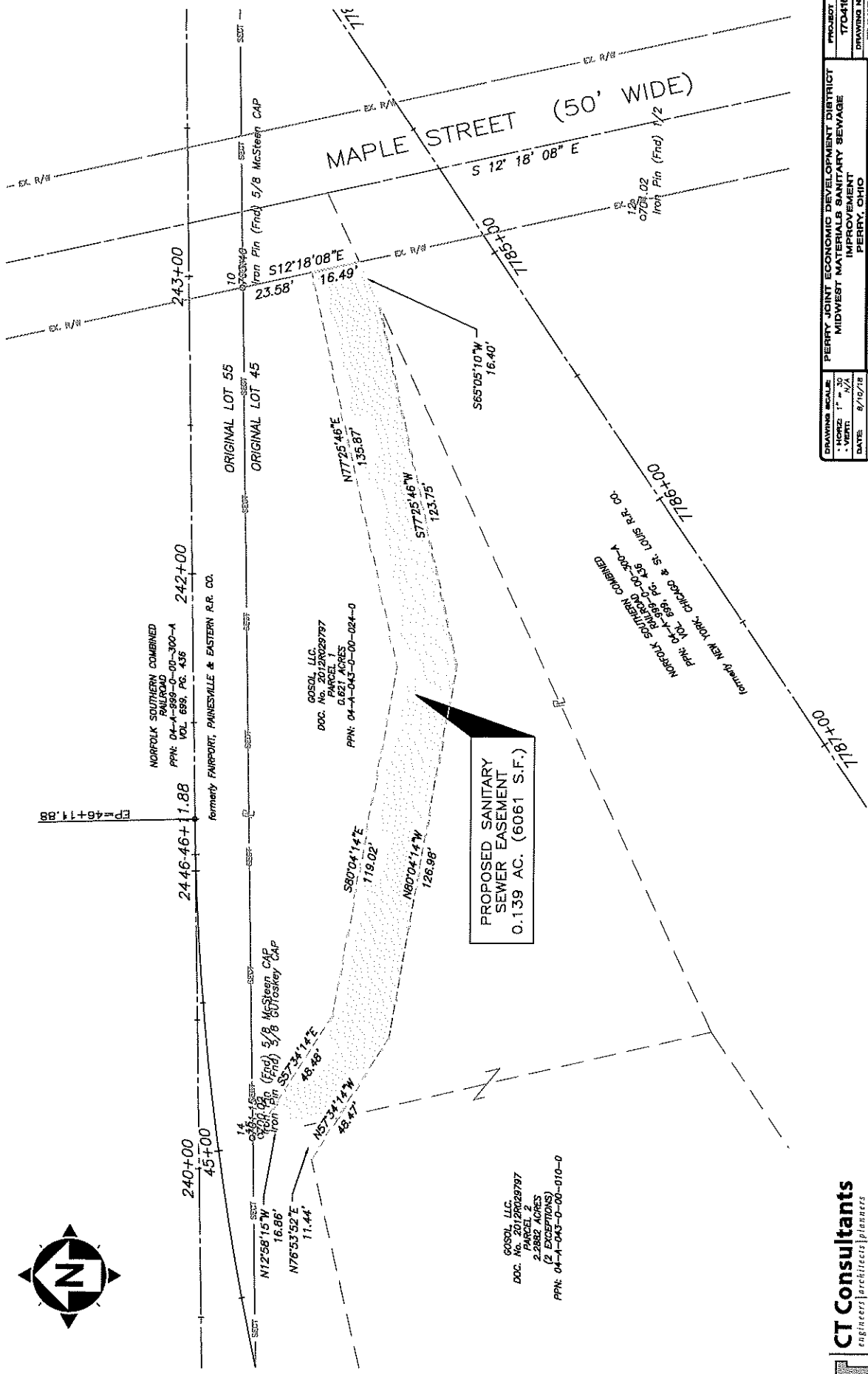
Before me, a Notary Public in and for said County and State, personally appeared the above named Perry Joint Economic Development District, by and through Robert Dawson, its: Chairman of the Board of Trustee, the Grantee who acknowledged that they/he/she did sign the foregoing instrument and that the same is their/his/her free act and deed.

In Testimony Whereof, I have hereunto set my hand and official seal, at Perry, OH this 5th day of November, A.D. 2018.


NOTARY PUBLIC
KAREN L. SUNDY
Notary Public, State of Ohio
My Commission Expires 4-17-22
Recorded in Lake County

(SEAL)

This Instrument prepared by:
James M. Lyons, Esq.



PROPOSED SANITARY SEWER EASEMENT
0.139 AC. (6061 S.F.)

GOSOL, LLC.
DOC. NO. 2012R029797
PARCEL 2
2.2882 ACRES
(2 EXCEPTIONS)
PPN: 04-A-043-0-00-010-0

GOSOL, LLC.
DOC. NO. 2012R029797
PARCEL 1
0.621 ACRES
PPN: 04-A-043-0-00-024-0

NORFOLK SOUTHERN COMBINED
FORMERLY NEW YORK, NEW YORK, CHICAGO & ST. LOUIS R.R. CO.
PPN: 04-A-043-0-00-200-4

DRAWING SCALE	PROJECT NO.
1" = 40'	170415
DATE	DRAWING NAME
8/10/18	EXHIBIT
DESIGNED BY: JOK	SHEET
DRAWN BY: PSL	1
CHECKED BY: TMA	1

CT Consultants
engineers | architects | planners
1555
P.O. Box 1481726 - Amherst, MA 01004-1726