

**COUNTY OF TUSCOLA
DEPARTMENT OF BUILDINGS AND GROUNDS**

125 W. Lincoln St
CARO, MI 48723

MICHAEL MILLER
Director

THOMAS MCLANE
Assistant Director

TO: INTERESTED CONTRACTORS

FROM: MIKE MILLER

DATE: March 4, 2020

RE: Vanderbilt County Park Dump Station

Tuscola County will be accepting bids on the installation of a new Dump Station and ELJEN Septic field at Vanderbilt County Park. The following specifications shall be considered in your bid:

Vanderbilt Park
4446 Bath rd
Fairgrove, MI 48733

1. Contractor is responsible for needed Soil Erosion, Plumbing and Electrical (if needed) permits, drawings and must follow all local, State and Federal codes.
2. County has obtained a septic permit, and has completed a plan review by the County code enforcement.
3. Contractor shall install the Dump Station and ELJEN Septic field as specified in the attached plans.
4. Contractor shall not make any changes to the plan without prior approval of the County and Engineer.
5. Contractor is responsible to remove the trees as specified in the plan. Contractor shall limb the wood and cut into pieces no larger than 20 inches for firewood. Brush to be removed.
6. Completed project area shall be mowable, and hydro seeded.
7. Contractor shall properly dispose of any extra material.
8. Contractor is responsible for all necessary construction required for a finished installation of the project.
9. Contractor is to field verify measurements before beginning work.
10. Contractor shall be insured and provide copy of liability insurance and workmen's comp.
11. Contractor shall be licensed to perform the required construction.
12. Contractor is to provide all necessary materials, and equipment.
13. All work is to be completed by qualified personnel.
14. Contractor is responsible for cleaning of the job site daily.
15. Contractor is responsible to secure project area each night to ensure the safety of park guests.

Contractors who are interested in submitting a bid for this project must attend a Pre-Bid meeting at the Park on March 17th, 2020 at 10am.

Sealed proposals labeled "Dump Station" shall be submitted to the Tuscola County Controllers office, Atten: Buildings and Grounds 125 W. Lincoln st, Caro, MI 48723 no later than 4:00 pm on April 3, 2020.

Please call if you have questions - 989-672-3756

Disclaimer

Tuscola County reserves the right at its sole discretion to reject any and all proposals received without penalty and not to enter a contract as a result of this RFP. The County also reserves the right to negotiate separately with any source whatsoever in any manner necessary to attend to the best interests of the County, to waive irregularities in any proposal and to accept a proposal which best meets the needs of the County, irrespective of the bid price."

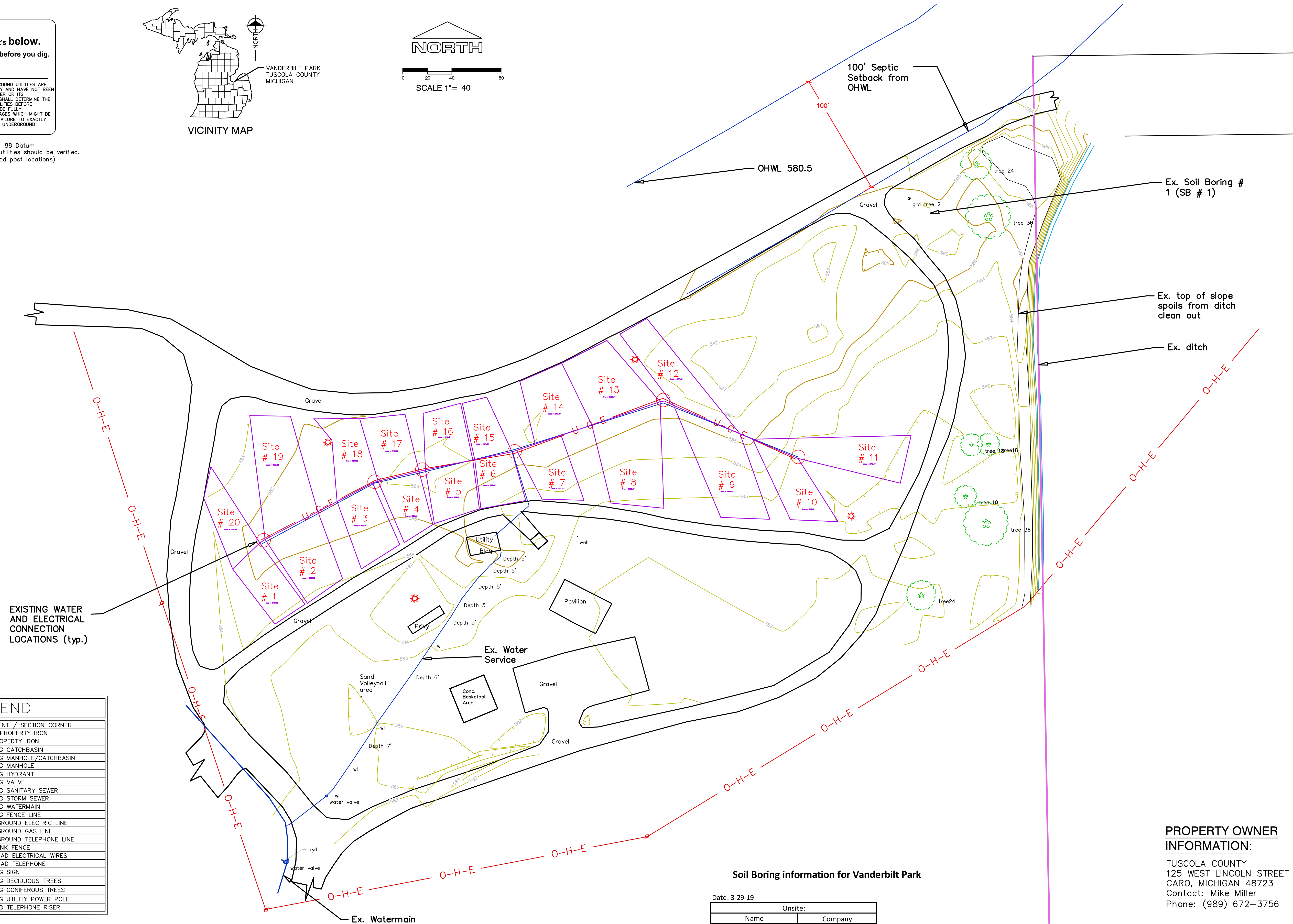
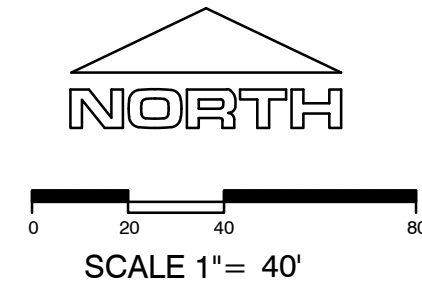
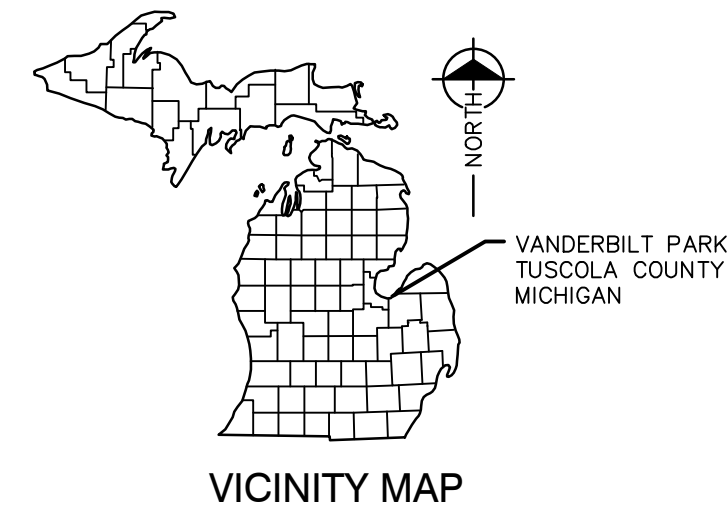
By submitting a bid, the bidder is acknowledging that there will be no contractual relationship between Tuscola County and the bidder until both parties have formally approved and signed a written contract to be developed by Tuscola County legal counsel.

The County reserves the right to make an award without further discussion of any proposal submitted. Therefore, the proposal should be submitted initially on the most favorable terms which the offer can propose. There will be no best and final offer procedure. The County does reserve the right to contact an offer for clarification of its proposal."



THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCURRED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

All Elevations shown are in N.A.V.D. 88 Datum
 Exact Location of all underground utilities should be verified.
 Camp Sites as posted 9/9/19 (wood post locations)



LEGEND	
	MONUMENT / SECTION CORNER
	FOUND PROPERTY IRON
	SET PROPERTY IRON
	EXISTING CATCHBASIN
	EXISTING MANHOLE/CATCHBASIN
	EXISTING MANHOLE
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE LINE
	U-G-E UNDERGROUND ELECTRIC LINE
	G-A-S UNDERGROUND GAS LINE
	T UNDERGROUND TELEPHONE LINE
	CHAINLINK FENCE
	O-H-E OVERHEAD ELECTRICAL WIRES
	T OVERHEAD TELEPHONE
	EXISTING SIGN
	EXISTING DECIDUOUS TREES
	EXISTING CONIFEROUS TREES
	EXISTING UTILITY POWER POLE
	EXISTING TELEPHONE RISER

EXISTING WATER AND ELECTRICAL CONNECTION LOCATIONS (typ.)

Soil Boring information for Vanderbilt Park

Date: 3-29-19	
Onsite:	
Name	Company
Tip MacGuire, R.S.	Health Department

Soil Boring #	Measurements (inches)	Information	Elevation
SB # 1	0	Top of Ground	585.71
	0 - 6.0	Sandy Top Soil	585.71 - 585.21
	6 - 48.0	Brown Coarse Sand	585.21 - 581.71
	48 - 60.0	Light Brown Coarse Sand	581.71 - 580.71
	50	Mottled	581.54
	54	Free Water	581.21

PROPERTY OWNER INFORMATION:

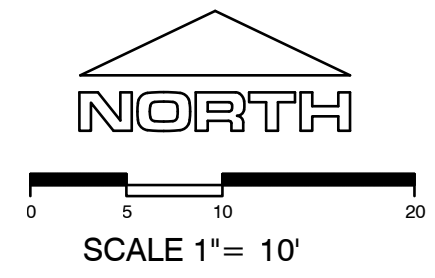
TUSCOLA COUNTY
 125 WEST LINCOLN STREET
 CARO, MICHIGAN 48723
 Contact: Mike Miller
 Phone: (989) 672-3756

Drawn By	WJHP
Checked By	WJHP
Designated	WJHP
Manager	WJHP
Project No.	PE18-012
Date	3-29-19
Scale	1" = 40'
Sheet No.	1 of 4
Project Name	Vanderbilt Park Septic
Location	Sec. 29, T14N, R7E, Wisner Twp., Tuscola Cty, MI
Client	4446 Bath Rd., Fairgrove, MI 48733
Contact	Mike Miller
Phone	(989) 672-3756
Email	wally.pe@outlook.com

PHILLIPS ENGINEERING
 Civil Engineering Consultants
 2455 Learman Road
 Bad Axe, Michigan 48413

Vanderbilt Park Septic
 Sec. 29, T14N, R7E, Wisner Twp., Tuscola Cty, MI
 4446 Bath Rd., Fairgrove, MI 48733
 Existing Conditions

PROJECT NO.
PE18-012
 SCALE: 1" = 40'
 SHEET NO.
1
 OF
4



811 Know what's below.
Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

CONCRETE PAD SLOPED TO FOOT OPERATED DRAIN
155 SFT

REMOVE EX. TREE

REMOVE EX. TREE

SIGN A

FOOT OPERATED DRAIN COVER

NON POTABLE WASH WATER
9 SFT CONC. PAD

BOLLARD (typ.)

1480 SFT GRAVEL DRIVE

NEW WASH WATER LINE
2" - 215'

TAP EXISTING WATER LINE.

CALCULATE ESTIMATED WASTEWATER FLOWS:

USE 50 gallons per site per day for sites with water service and 10 gal. per site for sites with out water service (Rustic Tent Sites). None of the sites have sanitary service. Assume all sites for campers (RV's) will have water in the future and rustic sites (tent sites) will not.
 20 sites with water or future water service x 50 = 1000
 0 sites with no water service (Rustic Tent Sites) x 10 = 0
 TOTAL EST. FLOW = 1000 gal.

(Based on water usage for RV site with 230 sites with showers and direct hook ups for the sanitary sewer)

Septic tank size based on 5.0 times Total Daily Flow (HSW) = 5000 gal.
Use 2500 gal first tank and 2500 gal. second tank with filter.

MAXIMUM SOIL APPLICATION RATE FROM Michigan Criteria for Subsurface Disposal is 1.0 gpd/sft trench and 0.75 gal/sft bed for coarse sand.

Drain field sized based on hydraulic loading of 1000 gal/day
Bed system at 0.75 gal/ft -- 1000/0.75 = 1334 sft.

Trench system using 2 ft. wide trench
1000 gpd / 1.0 / 2 = 500 ft of trench.

Since this is a Campground the BOD5 is considered high strength with an assumed ave. of 500 out of the septic tanks. Verify drain field size based on BOD.

Organic Soil Loading Rate
(140 mg/l BOD5 / 500 mg/l BOD5) x 1.0 gpd/sft = 0.28 gpd/sft.

Required Bed size --- 1000 / 0.28 = 3571 sft
Required Trench size --- 1786 ft of trench 2' wide

USING A ELGIN AT 2.0 GAL/SFT (50% reduction):
1000 gpd / 2.0 gpd / 16 = 31.25 modules REQ'D

Check Organic Loading: Assume out of septic 500 BOD5 at flow rate above the amount of pounds of BOD5 per day = 5.004
Required Elgin = 62.55 modules

Using 66 modules,
Bed Length using 6 trenches 66/6 = 11, Use 11 B43, TOTAL LENGTH= 45'.
plus 6" both side,

Bed width 4', (6" sand both side plus 3' module) with 1' between trenches, TOTAL WIDTH = 24'

**** IF NO TOXIC MATERIAL DUMPED BY CAMPERS INTO SEPTIC SYSTEM, ALL BIODEGRADABLE.**

5/9/19	Prelim. layout for Owner Review	Drawn by	WJHP
6/23/19	Loc. Ex. Lots and Water Line for Lots	Designed	WJHP
9-3-19	Shot new lot post sign layout per County	Manager	WJHP
10-14-19	Changed Septic system size per County	Manager	WJHP

Ph: (810) 404-9625
E-mail: wallype@outlook.com

PHILLIPS ENGINEERING

Civil Engineering Consultants
2455 Learman Road
Bad Axe, Michigan 49813

Vanderbilt Park Septic
Sec.29, T14N, R7E, Wisner Twp., Tuscola Cty, MI
Dump Station Design

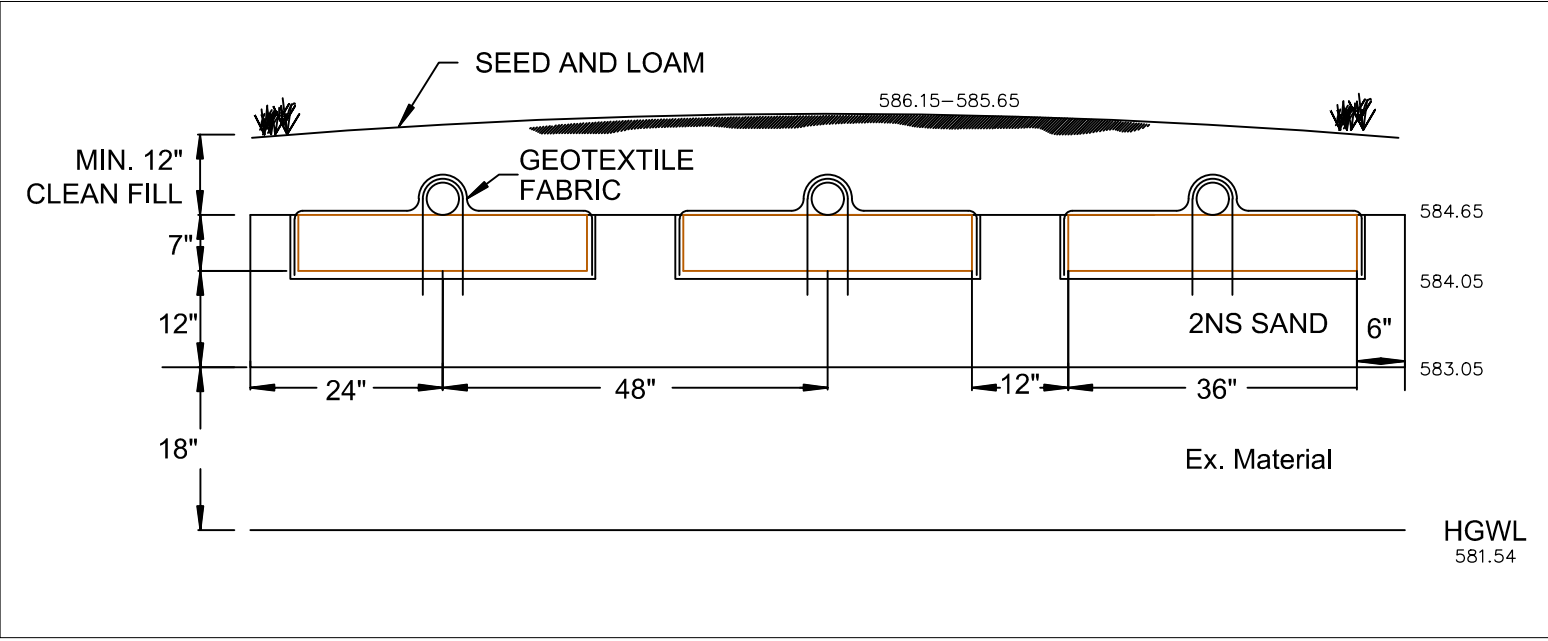
PROJECT NO.
PE18-012

SCALE: 1" = 10'

SHEET NO.
2
OF
4

DESIGN AND FLOW NOTES:

This design is based on the maximum organic loading must not exceed BOD5 of 500 per day, and a maximum hydraulic flow as shown above in the calculation. If either of these are exceeded, modification to the system or facility use patterns may be required.
 In addition, influent Fat, Oil, and Grease (FOG) shall not exceed 40 mb/l. If exceeded, modification to the system such as additional tanks, or modification of facility use patterns will be required.

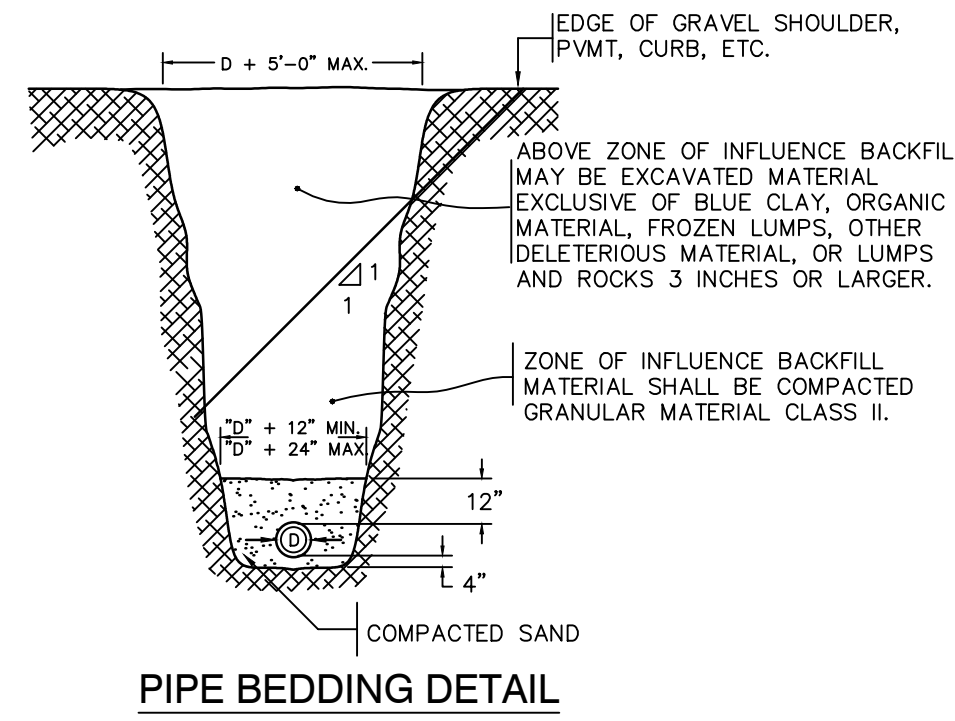


ELJEN BED CROSS SECTION DETAILS
NOT TO SCALE

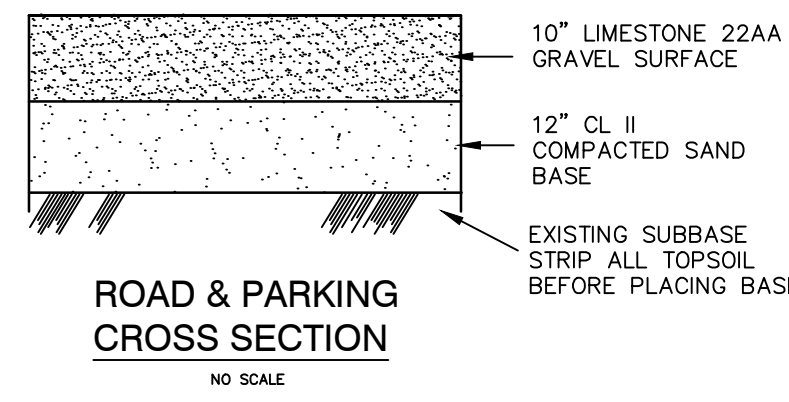
NOTE:

1. ALL BACK FILL SHALL BE COMPACTED TO 95% OF MAXIMUM AT OPTIMUM MOISTURE CONTENT.

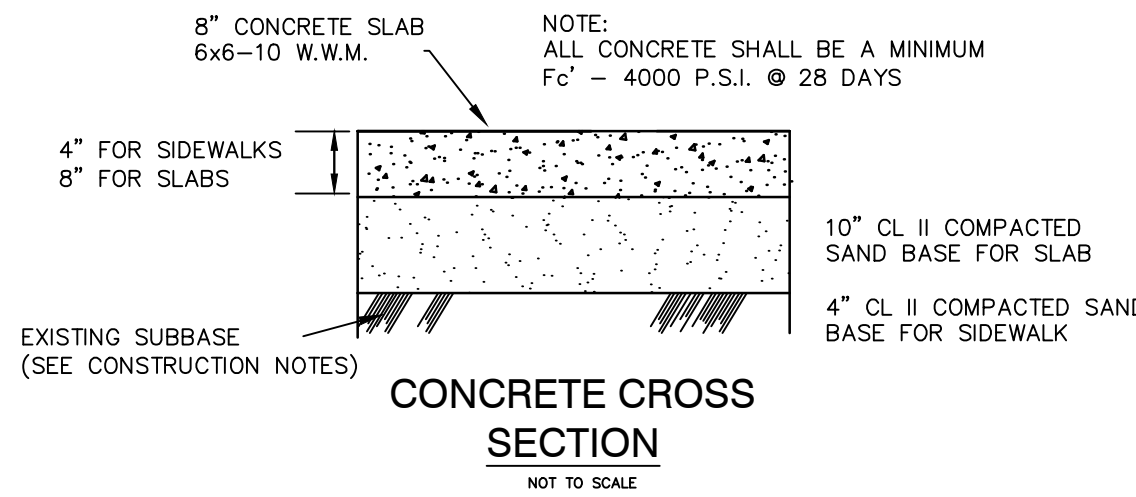
2. SLOPES TO BE IN ACCORDANCE WITH OSHA STANDARDS.



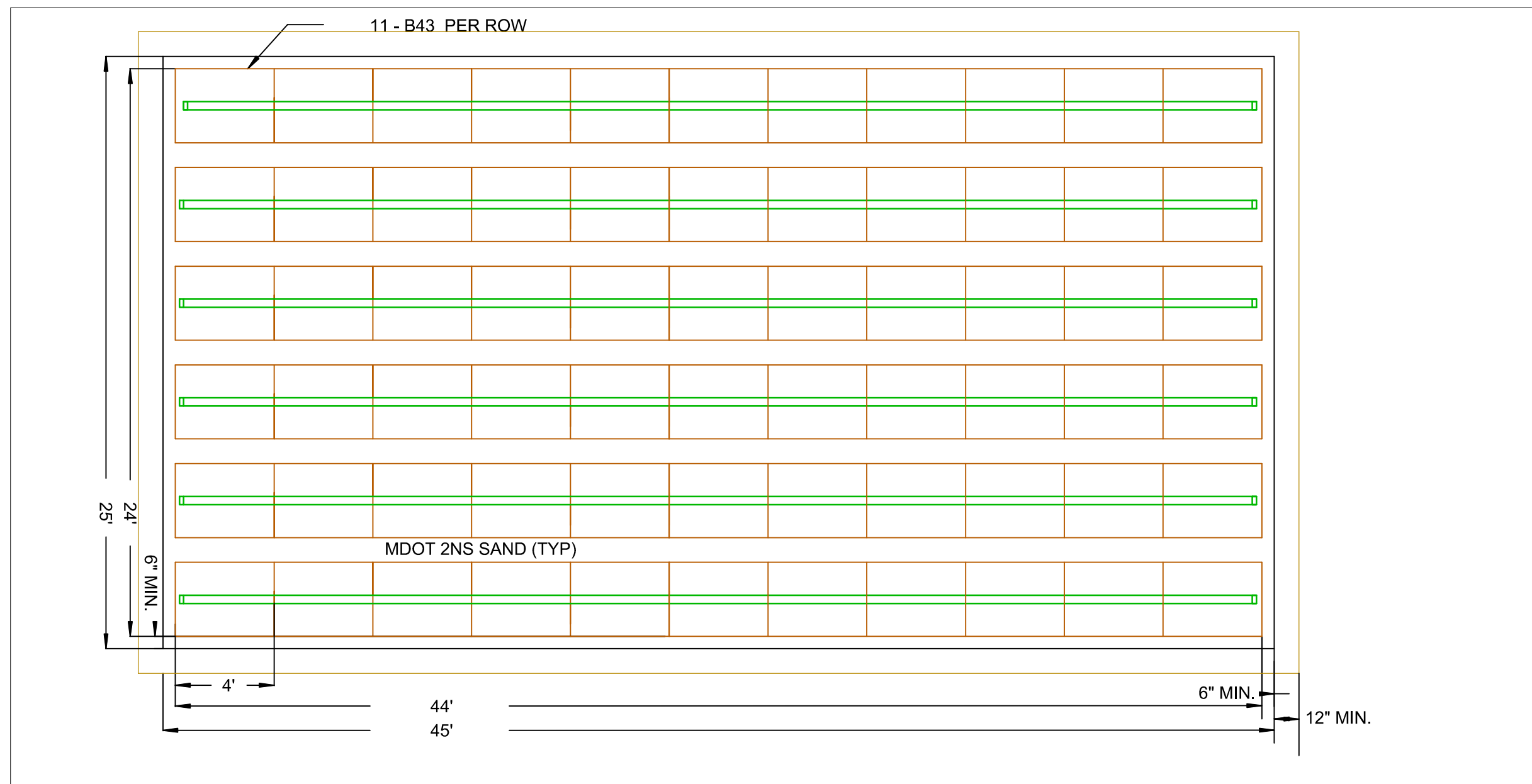
PIPE BEDDING DETAIL
NOT TO SCALE



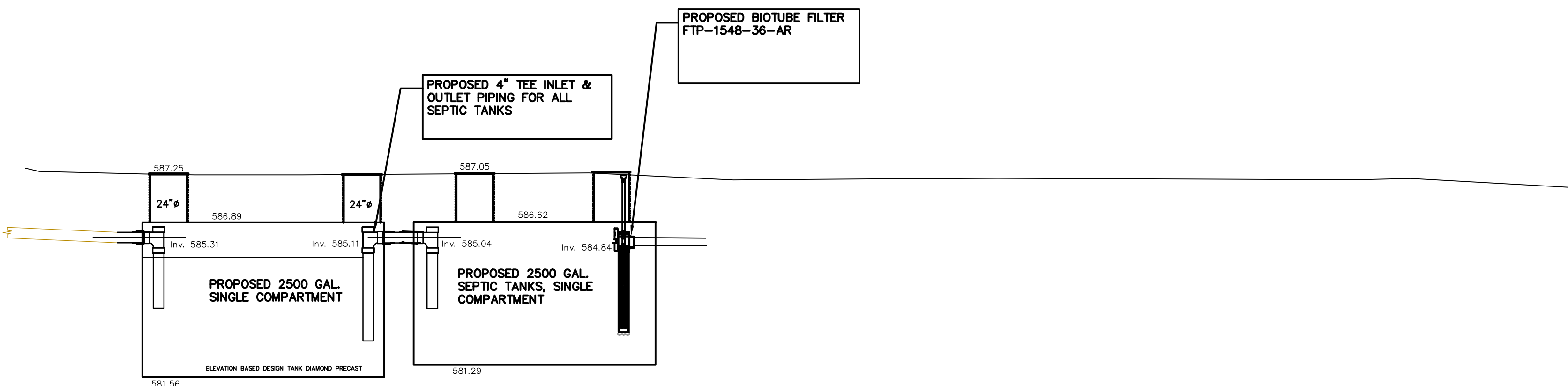
ROAD & PARKING CROSS SECTION
NO SCALE



CONCRETE CROSS SECTION
NOT TO SCALE



ELJEN BED SYSTEM DETAILS
NOT TO SCALE



CONSTRUCTION NOTES:

- 1.) CONTRACTORS 72 HOURS BEFORE YOU DIG CALL MISS DIG TOLL FREE (800) 482-7171.
- 2.) FIELD VERIFY MATERIAL, SIZE, AND LOCATION ALL UNDERGROUND PUBLIC UTILITIES (SANITARY, WATERMAIN, GAS, TELEPHONE, CABLE AND ELECTRIC SERVICES) BEFORE ANY INSTALLATION. THE UTILITIES WERE LOCATED BY FIELD OBSERVATIONS AND/OR PLANS FROM THE MUNICIPALITY. NOTIFY THE ENGINEER OF ANY CONFLICTS.
- 3.) SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE DESIGNED USING THE LATEST TUSCOLA COUNTY STANDARDS. CONSTRUCTION OPERATIONS SHALL NOT BE SCHEDULED AND PERFORMED UNTIL ALL PREVENTATIVE EROSION CONTROL MEASURES ARE IN PLACE. TEMPORARY STABILIZATION MEASURES ARE TO BE PLACED IMMEDIATELY FOLLOWING BACK FILLING AND/OR GRADING OPERATIONS. A SOIL EROSION AND SEDIMENTATION PERMIT FROM TUSCOLA COUNTY IS REQUIRED PRIOR TO CONSTRUCTION.
- 4.) NO EARTH MATERIALS SHALL BE REMOVED IN SUCH A MANNER AS TO CAUSE WATER TO COLLECT OR TO RESULT IN A PLACE OF DANGER OR MENACE TO THE PUBLIC HEALTH. THE PREMISES SHALL BE GRADED SO THAT SURFACE WATER OFF-SITE DRAINAGE IS MAINTAINED AND IS NOT INTERFERED WITH.
- 5.) ALL STOCKPILES OF MATERIAL LEFT ON THE SITE IN EXCESS OF 7 DAYS SHALL BE SURROUNDED WITH THE APPROPRIATE SILT FENCE, AND TEMPORARILY SEEDED TO PREVENT EROSION.
- 6.) ALL DESIGN GRADES ARE FOR FINISH SURFACES, TOP OF CURB, OR AS SPECIFIED ON PLANS.
- 7.) ALL BUILDING DIMENSIONS SHOWN ON THE CIVIL ENGINEERING PLAN ARE FOR REFERENCE ONLY. CONTRACTOR SHALL USE THE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS. NO ARCHITECTURAL PLANS ARE AVAILABLE AT TIME OF PRINTING.
- 8.) ALL WORK WILL BE COMPLETED WITH GOOD WORKMANSHIP AND MEET ACCEPTABLE STANDARDS OF APPEARANCE AND QUALITY.
- 9.) ALL FACILITIES AND STRUCTURES ARE NOT LOCATED WITHIN A 100 YEAR FLOOD PLAIN.
- 10.) ALL GRADES AND BUILDING INFORMATION PROVIDED BY OWNER. VERIFY INFORMATION BEFORE CONSTRUCTION.
- 11.) FIELD VERIFY ALL UTILITIES IN THE AREA. AN UNDERGROUND TELEPHONE CABLE RUNS.

GENERALIZED OPERATION AND MAINTENANCE REQUIREMENTS

-A water conservation plan should be initiated by the facility to prevent hydraulic overloading of the system.

-Pharmaceuticals shall not be disposed of in the system. Pharmaceuticals can harm the biology in the treatment system

-Cleaning products should be carefully selected and used. Some cleaning products and overuse can harm the biology in the treatment system.

-Only sanitary waste shall enter the system. No gutter discharge, storm drains, water softener discharge, and etc. shall enter the system.

-Vehicular traffic, livestock, or buildings will not be permitted on the soil absorption area.

-The soil absorption area must be kept mowed during the growing season. Mowing equipment shall not be allowed on the system when the soil is wet.

NOTES

Preconstruction meeting

Prior to construction the engineer, contractor and Health Department may meet to discuss construction procedures, equipment deliveries, site access, and responsibilities.

Site protection

Prior to construction the soil absorption area and reserve area shall be protected from traffic of any other activity that could cause compaction and damage the soil infiltration capacity.

Inspections

It shall be the responsibility of the contractor to arrange inspections with the engineer and Health Department. The inspection schedule will be determined during the Preconstruction meeting. At minimum the inspections shall include:

- Verify all elevations, adjust before installations.
- Fill sand should be approved prior to placement (engineer and Health Dept).
- Tank installation and water tightness testing (engineer).
- System startup (engineer, Health Dept., equipment supplier).
- Final Grading

Tanks

Tanks shall be properly installed, bedded and tested for watertightness. Refer to www.mowra.org for proper tank installation and watertightness testing procedures. Once on the website click on "TAC Information" and then under Table of Contents click on "TAC Publications".

SANITARY / SEPTIC

TANK NOTES:

- 1.) SINGLE COMPARTMENT WATERTIGHT TANKS SHALL HAVE A PVC ACCESS RISER W/BOLT DOWN LID.
- 2.) STRUCTURAL DESIGN AND CONSTRUCTION OF TANK MUST CONSIDER EXTERIOR SOIL AND GROUND WATER STRESSES AFFECTING EMPTIED CHAMBER AND POSSIBLE TRAFFIC PARKING ON TANK.
- 3.) SEPTIC TANK TO BE FILTERED. ALL TANKS TO BE TESTED FOR LEAKAGE.
- 4.) RIBBED PVC ACCESS RISERS MUST BE WATER TIGHT, EPOXIED TO TANKS AND BOLTED DOWN FOR LIABILITY CONSIDERATION. CONTRACTOR/TANK MANUFACTURER SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF TANKS WITH LEAKS OR DEFECTS.

TRENCH BACK FILL NOTES:

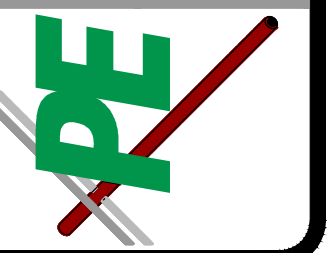
- 1.) TRENCH AREAS NOT WITHIN THE INFLUENCE OF THE ROADWAY, ROAD SHOULDER, SIDEWALK, DRIVEWAY OR PARKING AREAS SHALL BE BACKFILLED WITH SUITABLE MATERIAL, FREE FROM ROCKS, WOOD, FROZEN MATERIAL, LARGE CLODS, ORGANIC MATTER AND OTHER DEBRIS AND PLACED IN MAXIMUM 24" LIFTS AND COMPACTED TO 90% OPTIMUM DENSITY.
- 2.) TRENCH AREAS WITHIN A 1 ON 1 SLOPE OF THE OUTSIDE EDGE OF THE ROADWAY, ROAD SHOULDER, SIDEWALK, DRIVEWAY OR PARKING AREAS SHALL BE BACKFILLED WITH CLASS II SAND OR APPROVED MATERIAL IN MAXIMUM 12" LIFTS AND COMPACTED TO 95% OPTIMUM DENSITY.
- 3.) TRENCH AREAS UNDER THE ROADWAY, ROAD SHOULDER, SIDEWALK, DRIVEWAY OR PARKING LOT SHALL BE BACKFILLED WITH CLASS II SAND, OR APPROVED MATERIAL IN MAXIMUM 12" LIFTS AND COMPACTED TO 95% OF OPTIMUM DENSITY.
- 4.) ALL TRENCHING BEDDING AND BACKFILL SHALL BE INCLUDED IN THE UNIT PRICE OF THE PIPE CONSTRUCTED.
- 5.) BACKFILL SHALL BE PLACED IN SUCH A MANNER AS NOT TO DISTURB THE ALIGNMENT OF THE PIPE.
- 6.) CONTRACTOR SHALL BE RESPONSIBLE TO COMPLETE RESTORATION OF THE WORK AREA

GENERAL NOTES:

- 1.) ON SITE SANITARY SEWER DISPOSAL SHALL BE CONSTRUCTED USING THE LATEST TUSCOLA COUNTY ENVIRONMENTAL HEALTH CODE STANDARDS AND MICHIGAN DESIGN AND INSTALLATION MANUAL FOR ELJEN SYSTEM A PERMIT FROM TUSCOLA COUNTY ENVIRONMENTAL HEALTH IS REQUIRED PRIOR TO CONSTRUCTION.
- 2.) INSTALLATION OF ELJEN SYSTEM SHALL FOLLOW MICHIGAN DESIGN & INSTALLATION MANUAL. MUST USE MDOT 2NS SAND.
- 3.) SEWER MAIN AND HEADER SHALL BE 4" PVC SCH. 40 NSF-DWV PIPE MEETING ASTM D-2665. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D-2321. JOINTS SHALL BE SOLVENT WELD TYPE MEETING THE REQUIREMENTS OF ASTM D-2564, ALL FITTINGS SHALL BE A TYPE MEETING THE REQUIREMENTS OF ASTM F-1866.
- 5.) SEWER LATERALS (TRENCH PIPING) SHALL BE APPROVED PERFORATED PIPE.
- 6.) FOOTING DRAINS, DOWN SPOUTS, WATER SOFTENER DISCHARGE, ANY WASTE WATER NOT DEFINED AS SEWAGE, OR ANY OTHER CONDUIT COMING STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO SANITARY SEWER.
- 7.) THE CONTRACTOR WILL BE REQUIRED TO TEST THE NEWLY CONSTRUCTED SANITARY SYSTEM TO ASSURE THAT IT OPERATES FULLY WITH NO EXFILTRATION AND INFILTRATION. CONTRACTOR IS TO SUPPLY THE OWNER WITH ALL WARRANTEE AND LITERATURE FOR SAID SYSTEM.
- 8.) CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE OWNER PRIOR TO ACCEPTANCE OF THE SYSTEM. AS-BUILT DRAWINGS MUST SHOW ALL LOCATIONS FOR BENDS, TEES, AND ALL ITEMS TO LOCATE MAIN. ALL BEND LOCATIONS FOR THE SANITARY SERVICE SHALL BE SHOWN ON THE AS-BUILT DRAWINGS WITH A DISTANCE FROM TWO BUILDING CORNERS, FOR FUTURE RELOCATION.
- 9.) SYSTEM SHALL BE INSTALLED CONFORMING TO THE STATE OF MICHIGAN AND THE SYSTEM MANUFACTURE. IF ANY CONFLICT IN THE REQUIREMENTS, THE MORE STRINGENT REQUIREMENT DICTATES.
- 10.) ALL PROPOSED ELEVATIONS BASED ON USING TANKS AS LABELED. OTHER TANKS CAN BE USED BUT NEW ELEVATIONS MUST BE VERIFIED BEFORE ORDERING AND PLACING.
- 11.) DESIGN ENGINEER SHALL INSPECTED AND SUBMIT A CERTIFICATION ON THE SYSTEM. THE CERTIFICATION MUST STATE THE SYSTEM WAS INSTALLED IN COMPLIANCE WITH THE APPROVED PLANS OR ANY CHANGES MADE MUST BE APPROVED BEFORE FINAL INSPECTION BY TUSCOLA COUNTY HEALTH DEPARTMENT. TUSCOLA COUNTY HEALTH DEPARTMENT MAY ISSUE FINAL APPROVAL ONLY AFTER ALL ITEMS ARE COMPLETE.

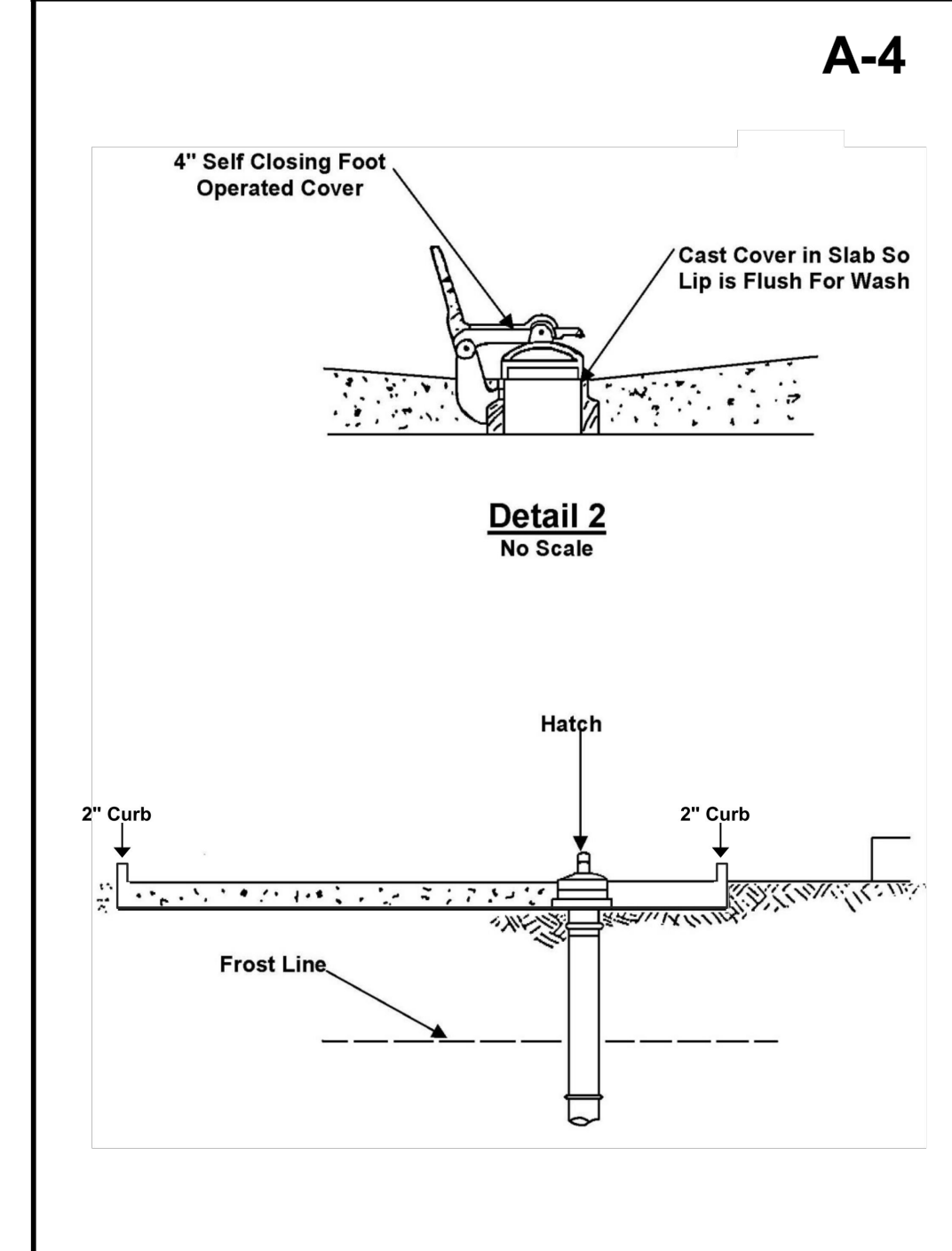
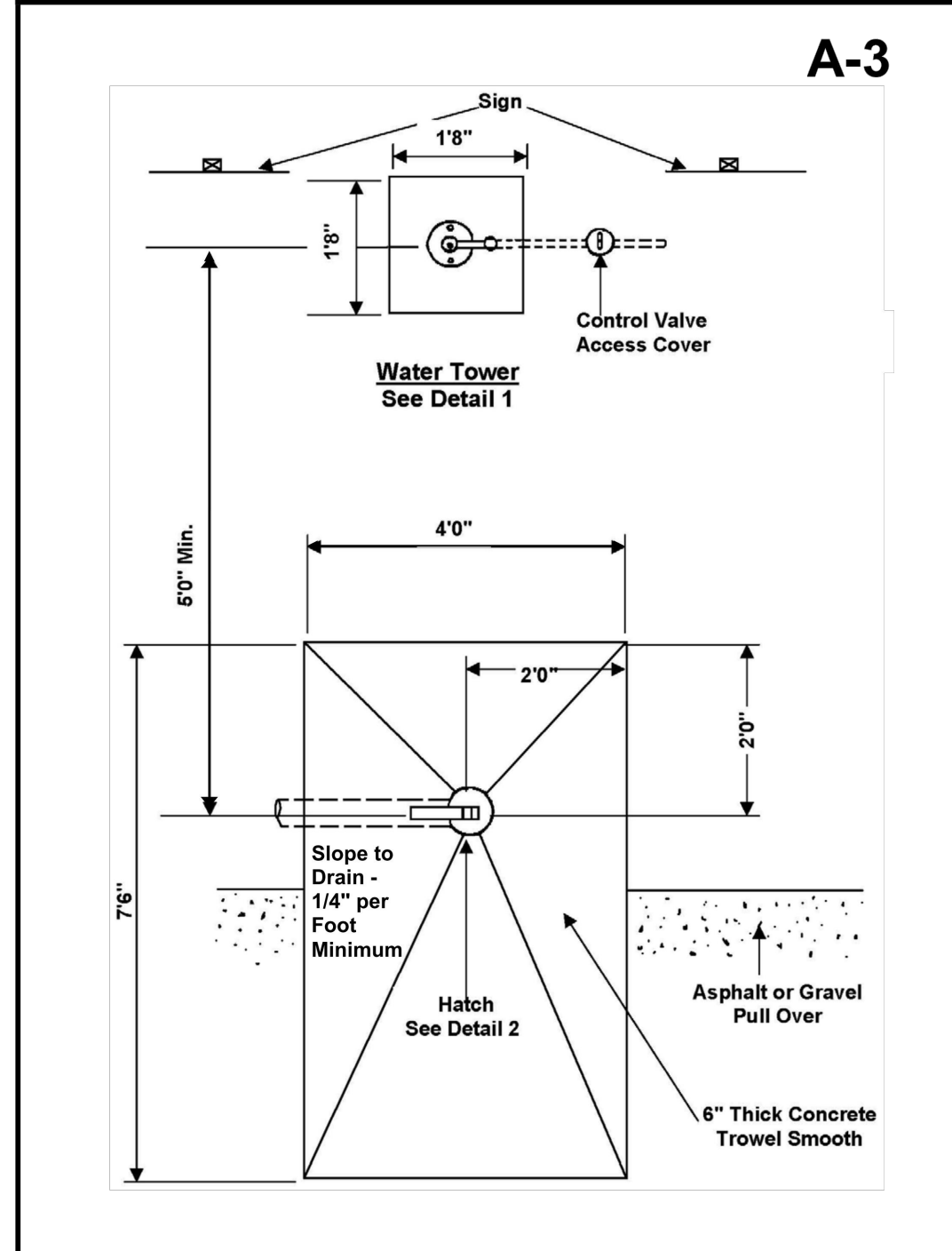
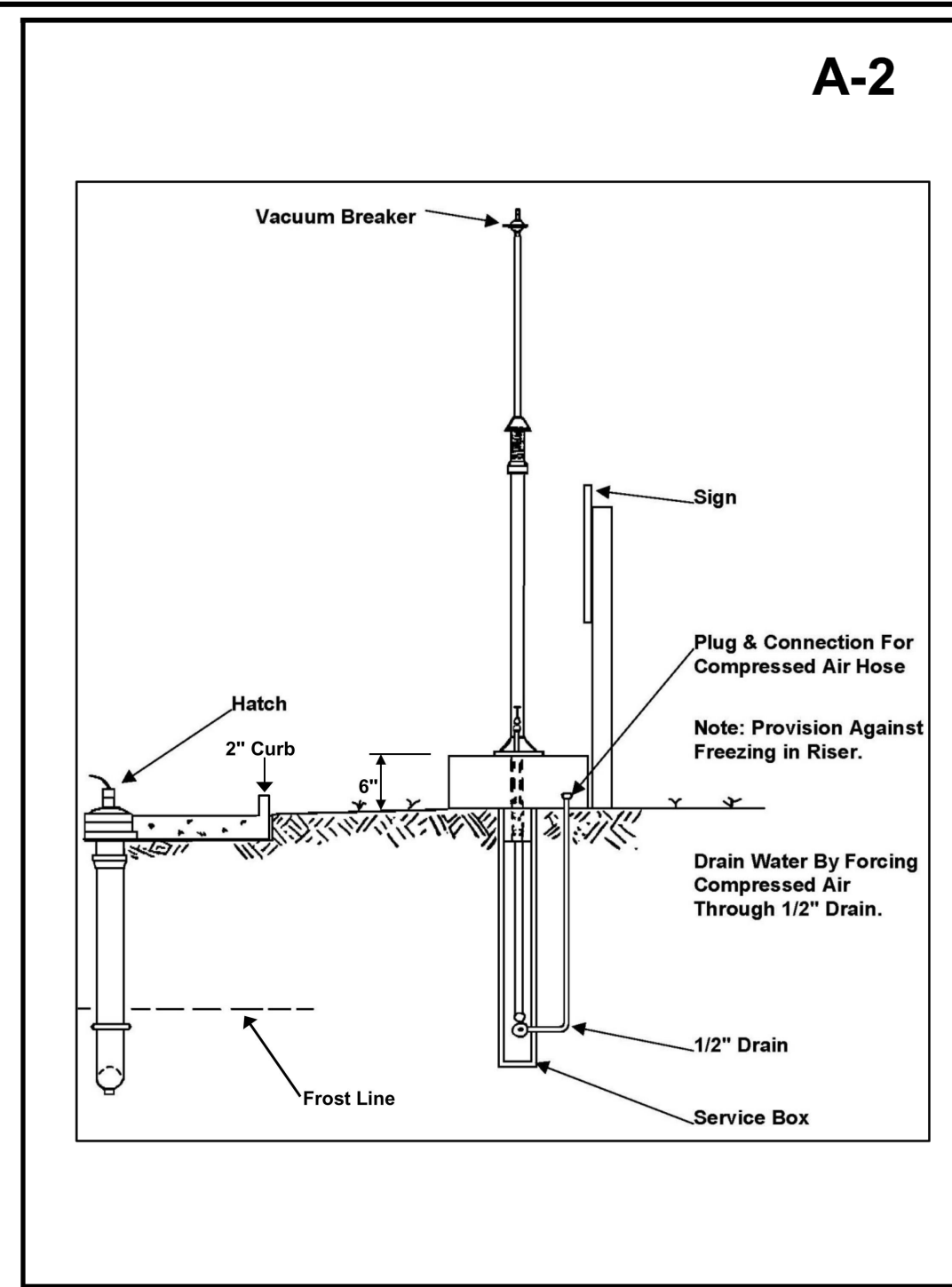
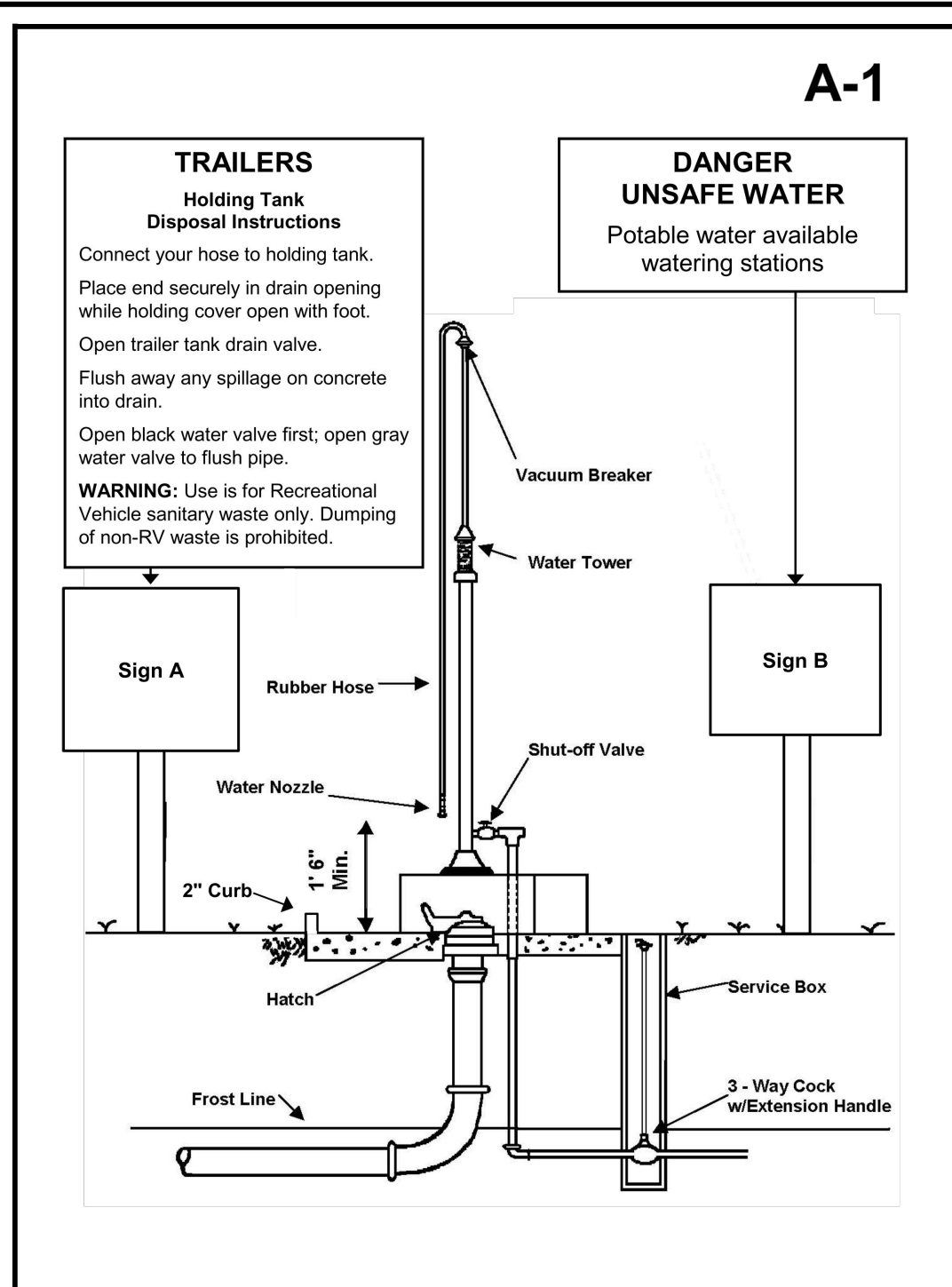
Drawn By	WHHP
Checked By	WHHP
Design	WHHP
Manager	WHHP
E-mail:	wally.pe@outlook.com

PHILLIPS ENGINEERING
Civil Engineering Consultants
2455 Learman Road
Bad Axe, Michigan 48413



Vanderbilt Park Septic
Sec.29, T14N, R7E, Wisner Twp., Tuscola Cty, MI
DRAIN FIELD
Detail Sheet

PROJECT NO.	PE18-012
SCALE:	1" = N/A
SHEET NO.	3 OF 4



CONSTRUCTION NOTES:

- 14.) ALL CUT AND FILL AREAS SHALL BE STRIPPED FREE OF TOPSOIL, DEBRIS AND VEGETATION ETC. PRIOR TO GRADING AND/OR CUTTING TO THE APPROPRIATE SUBGRADE. THE TOPSOIL SHALL BE SALVAGED AND STOCKPILED ON THE SITE FOR FUTURE USE. SUITABLE MATERIAL EXCAVATED FROM THE CUT AREAS MAY BE USED FOR FILL, AS APPROVED, AND DIRECTED BY THE ENGINEER. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 10" LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY IN PAVEMENT, BUILDING, AND STRUCTURAL AREAS. IN GRASS AREAS COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557 MODIFIED PROCTOR.
- 15.) THE CONTRACTOR SHALL PROOF-ROLL THE EXISTING SUBGRADE TO DETERMINE ITS SUITABILITY. IF IN THE OPINION OF THE ENGINEER THE SUBGRADE IS UN SUITABLE, THAT PORTION OF THE SUBGRADE SHALL BE EXCAVATED AND REPLACED WITH A MINIMUM OF 12" CLASS II GRANULAR MATERIAL.
- 16.) CLASS II SAND SUBBASE SHALL BE PLACED IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR UNIFORMITY OF GRADE. THE MATERIAL MUST MEET MDOT GRADATION REQUIREMENTS FOR CLASS II SAND. CLASS II SAND SUBBASE SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557, MODIFIED PROCTOR.
- 17.) 22A AGGREGATE BASE SHALL BE PLACED IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR UNIFORMITY OF GRADE AND GRADATION. 22A AGGREGATE BASE SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557 MODIFIED PROCTOR.
- 18.) BITUMINOUS ASPHALT NO. 13A SHALL PLACED IN 2 LIFTS @ 165#/SYD. NO. 13A LEVELING COURSE, AND 165#/SYD. NO. 13A WEARING COURSE (ASPHALT PENETRATION 120-150). BITUMINOUS ASPHALT SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY.
- 19.) CONCRETE FOR SIDEWALKS, DRIVES AND CURBS SHALL HAVE A 28 DAY YIELD STRENGTH OF 3500 PSI, AND BE PLACED IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF TRANSPORTATION. CONCRETE FOR SIDEWALKS, AND DRIVES SHALL BE PLACED ON A MINIMUM OF 4" COMPACTED SAND FILL.
- 20.) ALL UTILITY TRENCHES WITHIN DRIVE/ PARKING LOT SHALL BE CLASS II SAND BACK FILL, PLACED IN 18" LIFTS AND COMPACTED TO 95% OPTIMUM DENSITY.
- 21.) SANITARY SERVICES ARE TO BE INSTALLED ACCORDING TO TUSCOLA COUNTY HEALTH DEPARTMENT AND THE STATE OF MICHIGAN SPECIFICATIONS.
- 22.) PROOF ROLL BUILDING AND ALL PARKING AREAS, NOTIFY THE ARCHITECT OR ENGINEER OF ANY UNACCEPTABLE AREAS.
- 23.) ALL DESIGN GRADES ARE FOR FINISH SURFACES, EDGE OF PAVEMENT, TOP OF CURB, OR AS SPECIFIED ON PLANS.
- 24.) ALL LAWN AREAS THAT ARE CUT OR FILLED TO THE APPROPRIATE GRADE SHALL BE COVERED WITH A MINIMUM OF 3" OF TOPSOIL AND SEEDED WITHIN 72 HOURS OF ESTABLISHING THE APPROPRIATE GRADE.
- 25.) ALL DAMAGED DONE OUTSIDE THE PROPERTY LINES TO EXISTING AREAS AND ELEMENTS, (SIDEWALKS, PAVING, LANDSCAPING, ETC.) SHALL BE REQUIRED TO BE REPAIRED AND/OR REPLACE PER OWNER AND/OR GOVERNING AUTHORITY SPECIFICATIONS.
- 26.) ALL SIDEWALK CURB AND GUTTER, STREET PAVING, CURB CUTS, DRIVEWAY APPROACHES, HANDICAP RAMPS, ETC. CONSTRUCTED SHALL CONFORM TO ALL MUNICIPAL AND/OR STATE SPECIFICATIONS AND REQUIREMENTS.
- 27.) WHERE CURB & GUTTER, DRIVEWAYS, SIDEWALKS, OR PORCH SLABS ARE TO BE PLACED IN FILL AREAS, THE EXISTING TOPSOIL SHALL BE STRIPPED AND STOCK PILED FOR USE ON THE SITE. NATIVE SOIL SHALL BE PLACED IN MAXIMUM 10" LIFTS AND COMPACTED TO 95% OF ITS MAXIMUM DENSITY AS DETERMINED BY ASTM D1557, MODIFIED PROCTOR.
- 28.) ALL GRAVEL SURFACES AREAS AND FIRE LANES TO BE CONSTRUCTED OF MDOT 22A AT MINIMUM DEPTH SHOWN IN DETAIL.
- 29.) ALL NEW PAVEMENT EDGES TO BE FLUSH WITH EXISTING PAVEMENT SURFACES.
- 30.) THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES MUST BE FOLLOWED WHEN WORKING IN THE EXISTING ROAD. THE CONTRACTOR MAY NEED TO SUBMIT A SKETCH FOR THE TRAFFIC CONTROL PRIOR TO CONSTRUCTION. AN MDOT PERMIT IS NOT REQUIRED.
- 31.) CURING COMPOUND SHALL BE WHITE MEMBRANE AND SHALL BE PLACED AS DIRECTED IN ACCORDANCE TO MICHIGAN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- 32.) A MINIMUM OF 1" EXPANSION JOINT MATERIAL FOR 100 LFT. OF CURB & GUTTER SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
- 33.) ALL WORK WITHIN THE STATE HIGHWAY RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH CURRENT MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- 34.) SEE THE ARCHITECTURAL DRAWINGS FOR THE SIGN DETAILS.
- 35.) FIELD VERIFY ALL UTILITIES IN THE AREA.
- 36.) ALL WORK WILL BE COMPLETED WITH GOOD WORKMANSHIP AND MEET ACCEPTABLE STANDARDS OF APPEARANCE AND QUALITY.
- 37.) ALL FACILITIES AND STRUCTURES ARE NOT LOCATED WITHIN A 100 YEAR FLOOD PLAIN.
- 38.) THE CONTRACTOR SHALL FURNISH AS-BUILT DRAWINGS INDICATING ALL CHANGES AND DEVIATIONS FROM APPROVED DRAWINGS.
- 39.) THE CONTRACTOR WILL MAINTAIN THE DUST ON INGRESS AND EGRESS DRIVES, USING WATER FROM THE EXISTING LAKE, ALONG WITH APPLICATIONS OF CHLORIDE WHEN NEEDED.
- 40.) THE CONTRACTOR/OWNER SHALL SUPERVISE AND DIRECT THE WORK EFFICIENTLY AND WITH HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCE, AND PROCEDURES OF CONSTRUCTION, MAINTENANCE, AND MEETING GOVERNING REQUIREMENTS. IF CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO SUCH ORDINANCES, RULES, AND REGULATIONS, WITHOUT NOTICE TO THE ENGINEER, HE SHALL BEAR ALL COSTS ARISING THEREFROM. HOWEVER IT SHALL NOT BE HIS PRIMARY RESPONSIBILITY TO MAKE CERTAIN THAT SPECIFICATIONS, PLAN NOTES ARE IN ACCORDANCE WITH THE ORDINANCES, RULES, AND REGULATIONS OF THE GOVERNING AUTHORITY.
- 42.) THE GOVERNING ENGINEER WILL MAKE PERIODIC VISITS TO THE SITE TO OBSERVE THE PROGRESS AND QUALITY OF THE EXECUTED WORK AND TO DETERMINE, IN GENERAL IF THE WORK IS PROCEEDING IN ACCORDANCE WITH THE GOVERNING AUTHORITY ORDINANCES.

WATERMAIN INSTALLATION, TESTING AND DISINFECTON

- I. INSTALLATION**
- A. General:
- 1.) Notify "Miss Dig" at 1-800-482-7171 at least 72 hours prior to doing any excavating.
 - 2.) All installation must follow ASTM D2774, AWWA Manual M23, detailed specifications, the Engineer, or as stated here.
 - 3.) Minimum cover over water main shall be 5'6" or as shown on plans.
 - 4.) Only Department of Public Works personnel shall perform opening and closing of valves on existing water mains.
 - 5.) When crossing over or under sewers and culverts with water main, maintain minimum 18" vertical separation.
 - 6.) Preventive and Corrective measures for preventing contaminating materials from entering the water main during storage, construction or repair shall be performed in accordance with ANSI/AWWA C651-05, Section Four-Preventive and Corrective Measures During Construction. Special attention shall be made to section (4.1, 4.2, 4.4, 4.5, 4.6, 4.7 & 4.8).
 - A. All openings in the pipeline shall be closed with watertight plugs when laying of pipe is stopped for period of time. Plug shall remain in place until through cleaning will be performed by flushing or other means, or the trench is dry or work resumes.
 - B. If dirt enters the pipe, it shall be removed. If, in the opinion of the owner, flushing may not remove the material, then the interior of the pipe shall be cleaned by mechanical means such as a pig.
 - C. The pipe is not to be laid in wet-trench conditions.
 - 7.) Contractor shall record witnesses on all bends, deflections, and fittings for record information. A 2x4 board may be placed 2.0' above the surface grade and an iron bar placed 12" below grade at the locations to be field measured at a later date.
 - 8.) Trencher wire must be placed along the trench with connections to the existing main, fittings, valve boxes, or any other apparatus of the watermain.

- II. CONNECTION TO EXISTING WATERMAINS**
- A. General:
- 1.) When making a connection to an existing water main, except where a live top is specified, isolate the existing main by closing the necessary existing valves.
 - 2.) Pump the water from the existing main so the connection may be made in the dry.
 - 3.) After the connection has been made, satisfactorily test and disinfect the portion of the new line to the nearest valve before placing the isolated existing main back in service, except as the Engineer may otherwise direct.
 - 4.) Prior to bidding, coordinate with the local authority as to where the existing valves are located so as to provide isolation. If valves are not adequate for isolation, utilize other means to make the connection with a minimum of interruption to service.
 - 5.) Timing:
 - a. Prosecute the work as rapidly as practicable.
 - b. The time of the procedure in making such connections shall be subject to the approval of the Engineer.
 - c. Such work may be required to be done at night in order to minimize inconvenience to water users.
- B. Final Connection to Existing Mains - (Optional) Construction Procedures per ANSI/AWWA C651-05 Section 4.4
- 1.) For connections less than or equal to 18 foot if required by the purchaser, the new pipe, fittings, and valves required for the connection may be spray-disinfected or swabbed with a minimum one-five percent solution of chlorine just prior to being installed.
 - 2.) For connections greater than 18 foot, if required by the purchaser the pipe required for the connection must be set up above ground, disinfected and bacteriological samples taken. After satisfactory bacteriological sample results have been received for this pipe, the pipe can be used in connecting the new main to the active distribution system. Between the times that satisfactory bacteriological sample results are received and the time that the connection piping is installed, the ends of this piping must be sealed with plastic wraps or watertight plugs or caps.

- III. HYDROSTATIC TESTING**
- A. General:
- 1.) Hydrostatically test all segments of water main at least seven (7) days after the last concrete thrust block or reaction blocking has been cast in place.
 - 2.) Temporary blow offs, caps or plugs shall be provided by the contractor at the ends of the new main for testing. The temporary blow off shall be sized to produce 2.5 fps velocity in the new main.
 - 3.) Prior to and during hydrostatic testing, the new main is not to be connected to existing water system, except as specified herein.
 - 4.) If approved by the Engineer, the contractor may test against closed valves providing that the new main shall have first been flushed and chlorinated in accordance with accepted procedure. After chlorination and subsequent flushing a sample of water must show safe bacteriological results tested by a recognized laboratory. In event of an unsatisfactory hydrostatic test, the contractor will cut the new main, install caps or plugs, pressure test and rechlorinate without additional cost or charge.
 - 5.) The Contractor shall furnish all necessary personnel, temporary timber bracing, plugs, blow offs, valves, sample taps, test pumps and all other necessary apparatus for conducting the test.
- B. Procedure:
- 1.) Before applying test pressure, all air shall be expelled from the pipe. If necessary to accomplish this, taps shall be made at points of highest elevation in the pipe, and such openings subsequently closed, prior to test with tight threaded brass plugs without additional cost or charge.
 - 2.) Fill each section of piping with water to a minimum pressure of 150 pounds per square inch at point of test, but not less than 125% of normal working pressure at the highest elevation.
 - 3.) Maintain this pressure for at least two (2) hours. The leakage, as measured by water meter or other method approved by the Engineer, from any section of main under test pressure shall not exceed a rate of 11 U.S. gallons per inch diameter of main per mile of pipe in 24 hours.

- IV. DISINFECTON OF MAINS**
- A. Connections and Plugs:
- 1.) Water main disinfection must follow AWWA C651-05.
 - 2.) Provide all necessary connections at the points of beginning of the individual sections of mains for applying chlorine to the mains for disinfecting purposes.
 - 3.) Furnish all temporary plugs required to test and disinfect mains. These plugs shall be braced by means, which can readily be removed.
- B. Procedure:
- 1.) After Water mains have been acceptably pressure tested and flushed, disinfect in accordance with ANSI/AWWA C651-05 Section 5: Methods of Chlorination, or other procedure acceptable to the Engineer.
 - 2.) Chlorinate all new mains and piping using either the tablet, continuous feed or slug method.
 - 3.) Chlorine residual samples shall be taken and tested to the satisfaction of the Engineer.
 - 4.) Remove chlorinated water from the mains as outlined in ANSI/AWWA C651-05 Section A-6: Final Flushing. Heavily chlorinated water shall be flushed from the main until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the distribution system or is acceptable for domestic use.
 - 5.) Heavily chlorinated water, which requires neutralizing, shall be neutralized according to ANSI/AWWA C651-05 Appendix C.
 - 6.) Bacteriological Tests
 - A. After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24 hours apart, shall be collected from the new main. At least one set of samples shall be collected from every 1200 foot of new main, plus one set form the end of the line and at least one set from each branch. All samples shall be tested for bacteriological quality in accordance with "Standard Methods for the Examination of Water and Wastewater" and shall show the absence of coliform organisms. A standard heterotrophic plate count may be required at the option of the owner without additional cost or charge. These tests shall be done in accordance with ANSI/AWWA C651-05 Section 5: Verification.
 - B. If trench water has entered the water main during construction or excessive quantities of dirt or debris has entered the water main, bacteriological samples shall be taken at approximately 200 foot identified intervals. Samples shall be taken of water that has stood in the water main for at least 16 hours after final flushing.
 - C. Samples shall be collected in sterile bottles treated with sodium thiosulfate as required by "Standard Methods for the Examination of Water and Wastewater". No hose or fire hydrant shall be used in the collection of samples.
 - D. If the analysis of samples shows the water not to be potable, refresh and resample. If the results are unsatisfactory, rechlorinate the mains in accordance with ANSI/AWWA C651-05 Section 5.2: rechlorinate until satisfactory samples are obtained all at no additional cost to the owner.

WATERMAIN MATERIAL SPECIFICATIONS

- I. PIPE**
- A. General: Water main pipe shall be the material and sizes specified on the drawings and as further specified below:
- 1.) Polyvinyl chloride (PVC) pressure pipe shall be Class 150 meeting standards with a dimension ratio of 18 meeting AWWA C900-97, ASTM D2122, ASTM D1578, ASTM D1784, ASTM D3139, ASTM F477, ASTM D1599, ASTM 2152, ASTM 1598, ASTM 2241, and ASTM 2412.
 - 2.) The pipe must be approved by National Sanitary Foundation (NSF), Underwriters Laboratory Inc. (UL), and Factory Mutual (FM).
- II. FITTINGS**
- A. General:
- 1.) All fittings shall be Mechanical joint push on type ductile iron rated for not less than 150 psi.
 - 2.) All fittings shall be AWWA C153, C104, ANSI/NSF 61 approved.
 - 3.) All fittings shall conform to ANSI A21.11, ANSI A21.4, and ANSI A21.53.
 - 4.) Glands, bolts, nuts, and gaskets shall be in accordance with ANSI/AWWA C153/A21.53.
- B. Lining and Coating:
- 1.) The inside of all fittings shall be cement lined and given a bituminous seal coat.
 - 2.) The outside of all fittings shall be coated with two coats of coal tar pitch varnish.
- III. VALVES**
- A. General:
- 1.) Valves shall be resilient wedge with a clockwise rotation to close manufactured by E.J.I.W. and of the sizes and types indicated on the drawings.
 - 2.) Valves shall have mechanical joints.
 - 3.) All valves shall be ANSI and AWWA approved.
 - 4.) All valves shall be rated for a minimum working pressure of 200 psi.
- B. Gate valves shall be as follows:
- 1.) Conform to AWWA C515 and UL262.
 - 2.) Shall be rated for a minimum working pressure of 250 psi.
 - 3.) Ductile iron body, bonnet, wedge, and seal plate in accordance with ASTM A536. Wedge shall be totally encapsulated and permanently bonded to rubber meeting ASTM D429.
 - 4.) Epoxy coat (inside and out) body, bonnet, and seal plate in accordance with ANSI/AWWA C550.
 - 5.) "O" ring shaft seals on stem, bonnet, and seal plate.
 - 6.) Non - rising stems.
 - 7.) Stem made of manganese bronze.
 - 8.) Nuts for key operation except as otherwise indicated on the drawings.
 - 9.) Turn Counter Clockwise (left) to open.
- C. Tapping Sleeve and Valve:
- 1.) Tapping sleeves shall be stainless steel.
 - 2.) Tapping valves shall be flange/mechanical joint gate valves in accordance with this Section or as otherwise approved by the Engineer.
- IV. VALVE BOXES**
- A. Valve boxes shall be cast iron 3 piece, screw type boxes, as manufactured by E.J.I.W.
- B. Lids shall be marked with "WATER". Locking covers may be required as shown or noted by Municipality.
- V. REPAIR CLAMP**
- A. Repair clamps shall be stainless steel with cemented in place gasket and corrosion resistant bolts as manufactured by Smith-Blair or Romac.
- VI. FIRE HYDRANTS ASSEMBLY**
- A. General:
- 1.) Hydrant assembly shall include all items for complete installation but not limited to: hydrant, valve, valve box, tee, pipe, and restrained joint fittings.
- B. Fire Hydrants:
- 1.) Hydrants shall be manufactured by (E.J.I.W. W/4 5/8" PUMPER, OR EQUAL) RIGHT HAND OPEN and/or of the style equal to those existing in the Municipality.
 - 2.) Hydrants shall conform to Standard AWWA C502 Specifications and Underwriters Laboratories requirements.
 - 3.) Furnish hydrants for 6.0' bury with two 2 1/2" hose connections and one 4 1/2" standard pumper connection, unless otherwise indicated on the Drawings.
 - 4.) Threads on hose connections shall be National Standard.
 - 5.) Hydrants shall open Counter Clockwise (left).
 - 6.) Six-inch (6") hydrants shall have 6" valve openings.
 - 7.) Supply hydrants painted red.
 - 8.) Hydrants shall be mechanical joints.
 - 9.) Hydrants shall be breakaway types.
 - 10.) Operating nut shall be pentagon.
- C. Hydrant valves shall be gate valves in accordance with this section or as otherwise approved by the Engineer.
- D. Grade adjustments to be using E.J.I.W. extension kit per manufacturer. (Only one extension per hydrant, no multiple extensions.)
- E. Shall include all fittings required for the layout i.e. Parallel or perpendicular to the main.
- VII. SERVICE CONNECTIONS**
- A. General:
- 1.) Connections to be flare type, no compression fittings.
 - 2.) Connections and fittings to be AWWA approved and rated for not less than 150 psi.
- B. Curb stops to be Mueller Mark II oriseal curb valves with female I.P. connections (2" H=10283).
- C. Curb box to be 2.5", arch base #95E, cast iron, 4.5' to 5.5' length, and pentagon plug lid.
- D. Saddle to be double wide strap and brass w/CC tapping.
- E. Lead to be "1" HDPE SDR11 OR TYPE "K" COPPER.
- F. All service taps must be made in the top 1/4 of the main.
- G. Provide a minimum of 1.0' slack in the service lead or as directed by the Engineer.

CONSTRUCTION NOTES:

- 1.) ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE CODES, ORDINANCES, DESIGN STANDARDS, AND STANDARD SPECIFICATIONS OF THE FOLLOWING ENTITIES. WHICH HAVE THE RESPONSIBILITY OF REVIEWING PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF ALL ITEMS INCLUDED IN THESE PLANS.
 - A- TOWNSHIP OF WISNER
 - B- TUSCOLA COUNTY
 - C- STATE OF MICHIGAN
- 2.) THE CONTRACTOR SHALL APPLY FOR AND OBTAIN ALL NECESSARY PERMITS AS REQUIRED FOR CONSTRUCTION OF THIS PROJECT PRIOR TO THE BEGINNING OF WORK FROM THE PREVIOUSLY MENTIONED ENTITIES.
- 3.) THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- 4.) THE CONTRACTOR IS TO VERIFY THAT THE PLANS AND SPECIFICATIONS THAT HE/SHE IS BUILDING FROM ARE THE VERY LATEST PLANS AND SPECIFICATIONS THAT HAVE BEEN APPROVED BY ALL APPLICABLE PERMIT ISSUING-ENTITIES AND THE OWNER. ALL ITEMS CONSTRUCTED BY THE CONTRACTOR PRIOR TO RECEIVING THE FINAL APPROVAL AND PERMITS HAVING TO BE ADJUSTED OR REDONE, SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
- 4A.) THE CONTRACTOR SHALL BE IN CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE; FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF HIS WORK WITH THAT OF ALL OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF HIS WORK.
- 5.) CONTRACTORS 72 HOURS BEFORE YOU DIG CALL MISS DIG TOLL FREE (800) 482-7171.
- 6.) THE CONTRACTOR SHALL NOTIFY THE GOVERNING MUNICIPALITY AND MDOT A MINIMUM OF 24 HOURS PRIOR TO ANY CONSTRUCTION IN THE ROAD RIGHT OF WAY OF (M-46)
- 7.) FIELD VERIFY MATERIAL, SIZE, AND LOCATION ALL UNDERGROUND PUBLIC UTILITIES (SANITARY, WATERMAINS, GAS, TELEPHONE, CABLE AND ELECTRIC SERVICES) BEFORE ANY INSTALLATION. THE UTILITIES WHERE WERE LOCATED BY TOPOGRAPHICAL SURVEY AND BY FIELD OBSERVATIONS AND/OR PLANS FROM THE MUNICIPALITY. NOTIFY THE ENGINEER OF ANY CONFLICTS.
- 8.) SHOULD THE CONTRACTOR ENCOUNTER CONFLICT BETWEEN THESE PLANS AND SPECIFICATIONS, EITHER AMONG THEMSELVES OR WITH THE REQUIREMENTS OF ANY AND ALL REVIEWING AND PERMIT ISSUING-ENTITIES, HE/SHE SHALL SEEK CLARIFICATION IN WRITING FROM THIS ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT THE SOLE EXPENSE TO THE CONTRACTOR.
- 9.) WHEN ANY EXISTING UTILITY REQUIRES ADJUSTMENT OR RELOCATION, THE CONTRACTOR SHALL NOTIFY THE PROPER UTILITY COMPANY AND COORDINATE THE WORK ACCORDINGLY. THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR FOR ANY COSTS CAUSED BY DELAYS IN CONSTRUCTION DUE TO THE ADJUSTMENT OR RELOCATION OF UTILITIES.
- 10.) SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE DESIGNED USING THE LATEST TUSCOLA COUNTY STANDARDS. CONSTRUCTION OPERATIONS SHALL NOT BE SCHEDULED AND PERFORMED UNTIL ALL PREVENTATIVE EROSION CONTROL MEASURES ARE IN PLACE. TEMPORARY STABILIZATION MEASURES ARE TO BE PLACED IMMEDIATELY FOLLOWING BACK FILLING AND/OR GRADING OPERATIONS. A SOIL EROSION AND SEDIMENTATION PERMIT FROM TUSCOLA COUNTY IS REQUIRED PRIOR TO CONSTRUCTION.
- 11.) NO EARTH MATERIALS SHALL BE REMOVED IN SUCH A MANNER AS TO CAUSE WATER TO COLLECT OR TO RESULT IN A PLACE OF DANGER OR MENACE TO THE PUBLIC HEALTH. THE PREMISES SHALL BE GRADED SO THAT SURFACE WATER OFF-SITE DRAINAGE IS MAINTAINED AND IS NOT INTERFERED WITH.
- 12.) ALL SITE GRADING MUST BE PERFORMED TO INSURE POSITIVE DRAINAGE ACROSS THE ENTIRE SITE THROUGHOUT THE PERIOD OF CONSTRUCTION AND AFTER PROJECT COMPLETION. WHEREVER POSSIBLE, STORM WATER SHOULD REMAIN ON SITE AND NOT CROSS THE ADJACENT PROPERTY LINES.
- 13.) ALL STOCKPILES OF MATERIAL LEFT ON THE SITE IN EXCESS OF 7 DAYS SHALL BE SURROUNDED WITH THE APPROPRIATE SILT FENCE, AND TEMPORARILY SEEDED TO PREVENT EROSION.

Drawn By WHP	Checked By WHP	Designated WHP	Manager WHP	WHP	WHP
5/9/19	6/3/19	9-3-19	10-14-19		
Prelim. layout for Owner Review Loc. Ex. Lots and Water Lines for Lots Shot. Ex. lot post sign layout per County Changed Septic system size per County					
E-mail: wally.phillips@outlook.com Ph: (610) 404-9625					

PHILLIPS ENGINEERING

Civil Engineering Consultants
2455 Learman Road
Bad Axe, Michigan 48413

PE

Walter E. Humphrey-Phillips P.E. #38245

Vanderbilt Park Septic

Sec.29, T14N, R7E, Wisner Twp., Tuscola Cty, MI

DUMP STATION

Detail Sheet

PROJECT NO.
PE18-012

SCALE: 1"= N/A

SHEET NO.
4
OF
4