BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS

VILLAGE OF CARLOCK,	)	
	)	
Petitioner	)	
	)	
v.	)	PCB No. 2015-110
	)	(Water well Setback Exception)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent	)	

PETITIONER'S ANSWERS TO PRE-HEARING QUESTIONS

NOW COMES Petitioner, Village of Carlock, by and through its attorney Patrick B. McGrath of McGrath Law Office, P.C., and hereby respectfully submits its Answers to Pre-Hearing Questions, as set forth on the attached pages.

Respectfully Submitted,

Patrick B. McGrath
Attorney for the Village of Carlock

McGrath Law Office, P.C.
Attorney for Village of Carlock
113 S. Main St., P.O. Box 139
Mackinaw, Illinois 61755
(309) 359-3461

CERTIFICATE OF SERVICE

I, Patrick B. McGrath, certify that I have served the attached Petitioner's Answers to Pre-Hearing Questions by first-class mail, upon the following persons:

Illinois Environmental Protection Agency
Division of Legal Counsel #21
PO Box 19276
Springfield, IL 62794-9276

Illinois Pollution Control Board
Clerk's Office
James R. Thompson Center
100 W. Randolph, Suite 11-500
Chicago, IL 60601

Village of Carlock
James M. Larimore
304 South Perry
Carlock, IL 61725

Patrick B. McGrath

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Attorney for Village of Carlock
113 S. Main St., P.O. Box 139
Mackinaw, Illinois 61755
(309) 359-3461

PCB 15-110 VILLAGE OF CARLOCK

WATER WELL SETBACK EXCEPTION

RESPONSE TO PRE-HEARING QUESTIONS

35 Ill. Adm. Code 106.310(B): Best Available Control Technology Economically Achievable

1. We are addressing this question in reference to Item 7 on Page 3. The proposed Septic System and bacteriological testing of Well No. 1 and Well No. 2 constitute "the best available technology economically achievable" without creating an arbitrary and unreasonable hardship. The only two options available to address the setback requirements would result in additional costs of $136,000 (purchase land and relocate Septic System) or $260,000 (construct new Well No. 4 outside the Village) respectively as previously submitted. The Village's customers would be required to cover these additional costs as well as the significant water rate adjustment necessary for the approximately $1,100,000 low interest loan from the IEPA required to construct the new water plant to address compliance with the arsenic MCL.

2. The proposed Septic System is a conventional septic tank system with seepage field. The Proposed Septic System was originally designed to be a septic tank followed by a sand filter. The change to the conventional septic tank system with seepage field was based on discussions with the McLean County Health Department. In the event that an aerobic system was constructed, Section 905.100(j) - Aerobic Treatment Plants and NSF International/ANSI Standard 40 Wastewater Treatment Systems of Part 905 - Private Sewage Disposal Code of Subchapter r: Water and Sewage of Chapter I: Department of Public Health of Chapter I: Public Health contains four requirements to be met for a non-residential use. With an estimated daily wastewater flow of 85 gpd, the rated capacity of the plant would not exceed 113 gpd based on the total flow to the plant being at least 75% of the rated hydraulic capacity. (85 gpd/75% = 113.3 gpd) With a minimum rated treatment capacity for a residential aerobic unit sized for 400 gpd, the percentage of total flow from the proposed Septic System would be 21.3% which is far less than the 75% required of the rated capacity of the aerobic treatment unit.

3. Under Section 28.63 - Installer Licensing of Article II – Private Sewage Disposal Systems of Chapter 28 - Health & Sanitation of the McLean County Revised Code, the installer of the septic system shall have a license approved by the Board of Health of the McLean County Health Department of the County of McLean County, Illinois.

4. Under Section 28.49 – Operational Inspections or Evaluations of Article II – Private Sewage Disposal Systems of Chapter 28 - Health & Sanitation of the McLean County Revised Code, the inspection of the septic system shall be performed by a McLean County licensed installer or authorized representative of the Board of Health. The previous Village water superintendent was approached by the McLean County Health Department to perform such inspections since he was a licensed wastewater operator as certified by the Illinois Environmental Protection Agency (IEPA) in accordance with 35 Ill. Adm. Code 380 (Procedure for the Certification of Operators of Wastewater Treatment Works). Therefore we recommend that a condition of granting the exception include that the septic system shall be inspected by a licensed wastewater operator, contracted or employed by the Village of Carlock and approved by the McLean County Health Department, on an annual basis. Current Water Superintendent James M. Larimore possesses a Class 4 wastewater operator license as certified by the IEPA.

5. Raw water monthly bacteriological testing of existing Well No. 1 and Well No. 2 are presently required by the IEPA per the Groundwater Rule.

6. Pumping of the septic tank component of the Septic System should be an annual maintenance operation, however inclusion of this pumping as a condition of granting of the exception is acceptable to the Village.

7. The septic tank for the proposed Septic System was required to be a minimum of 750 gallons per the liquid capacity requirements of the McLean County Health Department for flows up to 500 gallons per day. The installer placed a 1,000 gallon septic tank in lieu of the minimum sized septic tank of 750 gallons required.

   The sewage discharged to the proposed Septic System was estimated at 85 gallons per day (gpd) based on the following calculations:
   - Water Plant (2 people @ 20 gpd = 40 gpd)
   - Maintenance Shed Bathroom (3 people @ 15 gpd = 45 gpd)

35 Ill. Adm. Code 106.310(c): Maximum Feasible Alternative Setback

8. Exhibit A of the petition is the Site Plan was drawn to scale as originally submitted. The pdf file shall be printed to its original size of 11" x 17" to be viewed to scale. An electronic copy is submitted herewith.

9. Exhibit A is being resubmitted with the approximate location of the original septic tank and seepage field shown. Please note that the septic tank and seepage field were removed/abandoned in place as necessary for the construction of the new Water Plant and as required by the McLean County Health Department.

10. Exhibit E shall be submitted as a matter of record for the details of the proposed Septic System. Please note that the Septic System permitted for use at the site has a slightly

larger septic tank and slightly smaller seepage field as shown in the attached copy of the permit application as calculated and submitted by the installer.

35 Ill. Adm. Code 106.310(d): Location Will Not Constitute a Significant Hazard

11. Under Section 28.57-2 – Application For Permit of Article II – Private Sewage Disposal Systems of Chapter 28 - Health & Sanitation of the McLean County Revised Code, the Board of Health may require soil classification information. A copy of the soil classification information submitted with the permit application is submitted as attached.

12. The average daily pumping rate for each Village well during 2013 were as follows:
    - Well No. 1 198 gallons per day
    - Well No. 2 3,861 gallons per day
    - Well No. 3 41,422 gallons per day

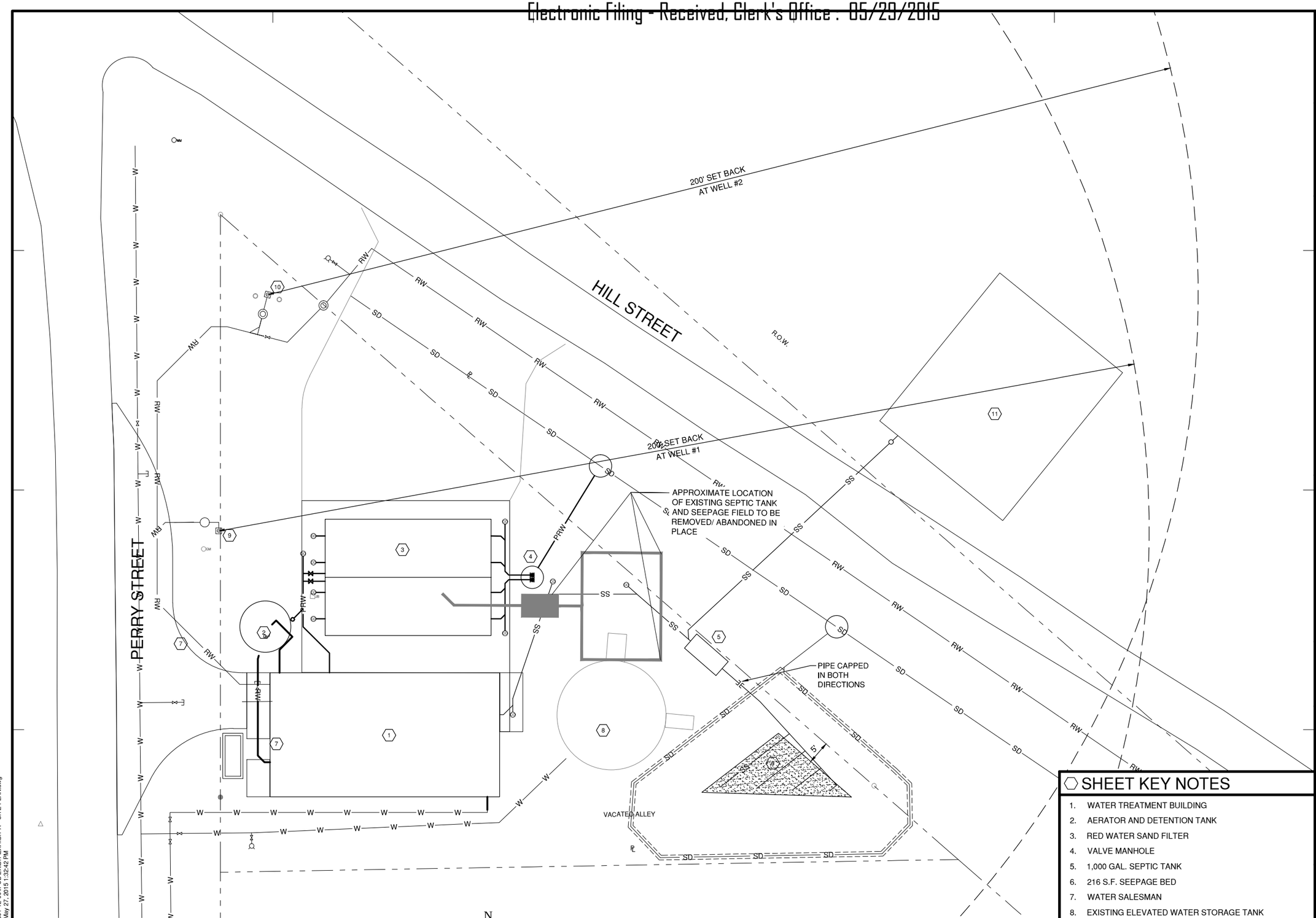
    The pumping rate (rated capacity) for each Village well is as shown in the following paragraph.

    The maximum pumping rate (rated capacity) of each Village well is shown in gallons per minute (gpm) as follows:
    - Well No. 1 75 gpm
    - Well No. 2 75 gpm (actual capacity = 56 gpm)
    - Well No. 3 150 gpm

13. Well No. 3 is capable of meeting the Village's water supply demand. However the IEPA requires that the Village must be able meet the Village's water supply demand with the largest production well out of service. (Section 3.2.1.1 - Source Capacity of Section 3.2 – Groundwater of Part 3 – Source Development as required in the Recommended Standards for Water Works, 2012 Edition). Therefore Well No. 1 and Well No. 2 are required in the event that Well No. 3 is out of service.

35 Ill. Adm. Code 704.Subpart I): Requirements for Class V Injection Wells

14. In discussions with the IEPA, the proposed Septic System would be subject to the requirements of 35 Ill. Adm. Code 704.281(i) since it serves multiple community buildings. Therefore the Village will be submitting the necessary inventory information to the IEPA in accordance with 35 Ill. Adm. Code 704.283.



A1 SITE PIPING PLAN
1" = 10'
0 10 20
N

SHEET KEY NOTES

1. WATER TREATMENT BUILDING
2. AERATOR AND DETENTION TANK
3. RED WATER SAND FILTER
4. VALVE MANHOLE
5. 1,000 GAL. SEPTIC TANK
6. 216 S.F. SEEPAGE BED
7. WATER SALESMAN
8. EXISTING ELEVATED WATER STORAGE TANK
9. EXISTING WELL 1
10. EXISTING WELL 2
11. EXISTING MAINTENANCE GARAGE

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CONSULTING ENGINEERS
License No. 184-000613

CONSULTANTS

WATER TREATMENT IMPROVEMENTS

CONSTRUCTION PLANS

OWNER

VILLAGE OF CARLOCK, ILLINOIS

MARK	DATE	DESCRIPTION

PROJECT NO:	11001-12-00
CAD DWG FILE:	EXHIBIT A - SITE PLAN.DWG
DESIGNED BY:	ALH
DRAWN BY:	ALH
CHECKED BY:	WAB
APPROVED BY:	RB
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2014

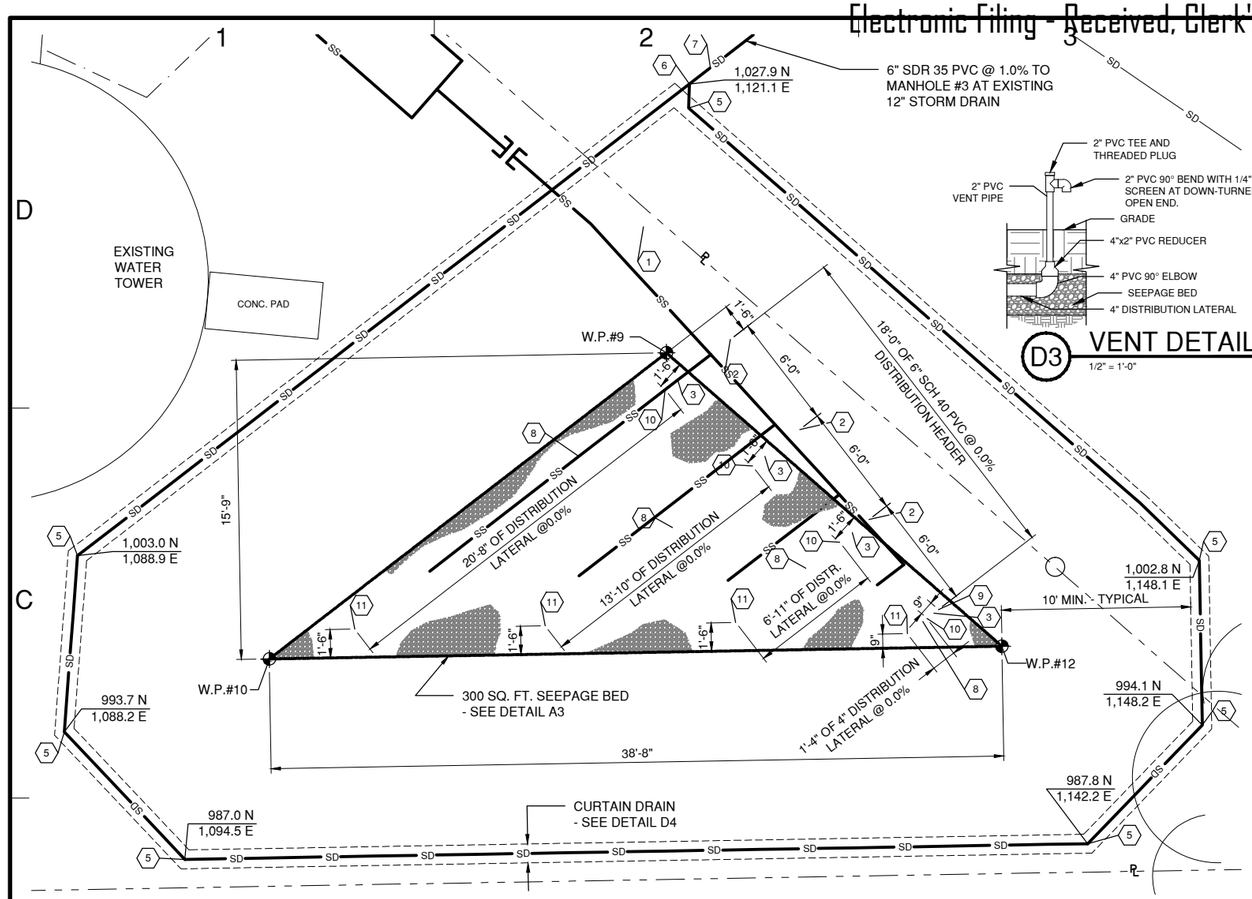
SHEET TITLE

SITE PLAN
IPCB PETITION

EXHIBIT A

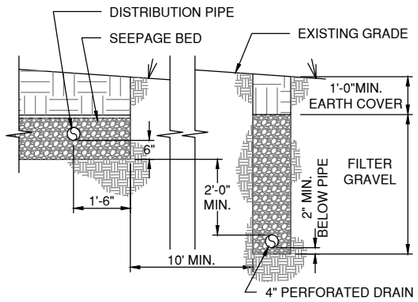
SHEET OF

Path: J:\Carlock\11001-12-00\IPCB EXIBIT\EXHIBIT A - SITE PLAN.dwg
Date: Wednesday, May 27, 2015 1:32:42 PM

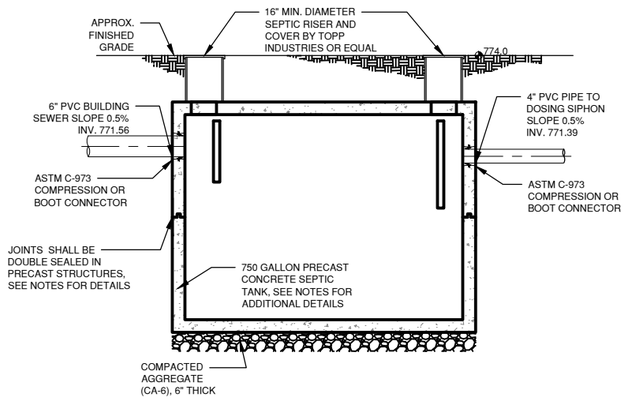


C1 SEPTIC SYSTEM PLAN
1/4" = 1'-0"

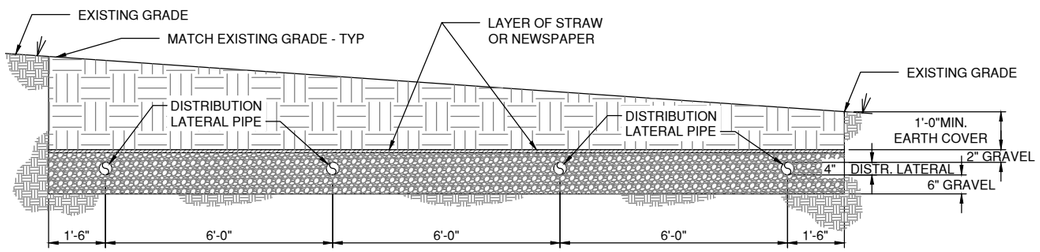
D3 VENT DETAIL
1/2" = 1'-0"



D4 CURTAIN DRAIN SECTION
1/2" = 1'-0"



A1 SEPTIC TANK ELEVATION
1/2" = 1'-0"



A3 SEEPAGE BED SECTION
1/2" = 1'-0"

GENERAL SHEET NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, THE ILLINOIS ADMINISTRATIVE CODE, TITLE 77, PART 905 "PRIVATE SEWAGE DISPOSAL CODE" AND 890 "ILLINOIS PLUMBING CODE", AND THE RULES AND REQUIREMENTS OF THE MCLEAN COUNTY HEALTH DEPARTMENT.
2. SEPTIC TANK SHALL BEAR THE MANUFACTURER'S ILLINOIS DEPARTMENT OF PUBLIC HEALTH APPROVAL NUMBER AND THE LIQUID CAPACITY OF THE TANK, IN GALLONS PROMINENTLY DISPLAYED ON THE OUTSIDE END WALL OF THE TANK ABOVE, OR NEXT TO, THE OUTLET PIPE SO THAT THIS INFORMATION IS READILY VISIBLE AFTER INSTALLATION AND PRIOR TO COVERING.
3. SEEPAGE BED GRAVEL MATERIAL SHALL BE CLEAN, WASHED, ROUNDED STONE, $\frac{3}{4}$" TO 2 $\frac{1}{2}$" DIA. IN ACCORDANCE WITH 77 IAC 905.60.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND PERFORMANCE OF THE SEPTIC SYSTEM.

PRIVATE SEWAGE DISPOSAL SYSTEM DESIGN SUMMARY

1. QUANTITY OF SEWAGE FLOW
   - WATER TREATMENT FACILITY
     - FACTORY w/TOILETS, NO SHOWERS
     - 20 GALLONS PER DAY PER PERSON
     - 2 PERSON MAXIMUM OCCUPANCY = 40 GALLONS PER DAY
   - CITY BUILDING
     - OFFICES & DAY WORKERS
     - 15 GALLONS PER DAY PER PERSON
     - 3 PERSON MAXIMUM OCCUPANCY = 45 GALLONS PER DAY

   TOTAL SEWAGE FLOW = 85 GALLONS PER DAY
2. SEPTIC TANK CAPACITY = 750 GALLONS
3. LIMITING SOIL ABSORPTION CAPACITY = 0.45 GALLONS PER DAY PER SQ. FOOT
4. REQUIRED SEEPAGE FIELD AREA = 189 SQUARE FEET
5. REQUIRED SEEPAGE BED AREA (1.5 X SEEPAGE FIELD) = 284 SQUARE FEET
6. MINIMUM SEEPAGE BED PER CODE = 300 SQUARE FOOT

CURTAIN DRAIN DESIGN SUMMARY

1. DRAINAGE AREA EXTENDS TO 18' OUTSIDE CURTAIN DRAIN
2. DRAINAGE AREA = 5,800 SQUARE FEET
3. 10-YEAR, 1-HOUR STORM EVENT = 2.09 IN/HOUR
4. AT 5% RUNOFF, PEAK DESIGN DRAINAGE FLOW = 0.267 CFS
5. FLOW IN 6" SDR 35 AT 1.0% SLOPE & 50% DEPTH = 0.267 CFS

SHEET KEY NOTES

1. 6" SCH 40 PVC PIPE
2. 6"x4" SCH 40 PVC TEE
3. 4" SCH 40 PVC PIPE
4. 4" PERFORATED DRAIN FIELD PIPE
5. 4" 45° ELL
6. 6"x4" SCH 40 PVC LATERAL WYE
7. 6" SDR 35 TYPE PSM PVC PIPE
8. 4" SCH 40 PVC PERFORATED DISTRIBUTION PIPE WITH 2 ROWS OF $\frac{1}{2}$" Ø OPENINGS ON 5 INCH CENTERS FACING DOWNWARD.
9. 6"x4" SCH 40 PVC 90° ELL
10. 4" SCH 40 PVC COUPLING
11. 2" SCH 40 PVC VENT TO THE SURFACE SEE DETAIL D3

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CONSULTANTS

WATER TREATMENT IMPROVEMENTS

CONSTRUCTION PLANS

OWNER

VILLAGE OF CARLOCK, ILLINOIS

MARK	DATE	DESCRIPTION
1	02/20/2014	REVISED SEPTIC TANK & SEEPAGE BED

PROJECT NO:	11001-12-00
CAD DWG FILE:	EXHIBIT E - SEPTIC SYSTEM.DWG
DESIGNED BY:	ALH
DRAWN BY:	ALH
CHECKED BY:	WAB
APPROVED BY:	RB
COPYRIGHT:	CRAWFORD, MURPHY & TILLY, INC. 2014

SHEET TITLE

SEPTIC SYSTEM PLAN & DETAILS

EXHIBIT E

SHEET 6 OF 55

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Date: Wednesday, May 27, 2015 1:30:19 PM

On-Site Soils Investigation for a Septic System

DATE: July 21, 2014

Commercial Rating

NAME: Village of Carlock
ADDRESS:
CITY, STATE, AND ZIP:

Septic Contractor: Rob Williamson
Septic Contractor's Phone:

Subject Property Location: Seepage field **s**ite east of water tower.
Type of Construction: For an existing building next to water tower
County: McLean
Township: White Oak
Well:
Property ID #: Located within section 32, T. 25 N. – R. 1 E.
Location Description:

Boring # 1

Location: Lat: 40 Degrees 34 Minutes 48.2 Seconds North; Long: 89 Degrees 07 Minutes 52.7 Seconds West. (Flag)

Percent Slope:			Depth to Saturated soil: About 22 inches (perched)			
Depth (inches)	----Brief Description of Soil Boring----				*Soil Group	*Commerical Allowable Application Rate: Gallons per Square Feet per Day
	Texture	Parent Material	Structure	Consistence		
0-9	Silty clay loam (<35% clay)	Loess	Moderate subangular blocky	Friable	6D	.62
9-14	Silt loam	Loess	Moderate subangular blocky	Friable	5D	.75
14-21	Silt loam	Loess	Weak subangular blocky	Friable	5B	.69
21-36	Silt loam	Loess	Massive	Friable	5L	.52

NAME: Village of Carlock
LOCATION: Seepage field site east of water tower.

Boring # 2

Location: Lat: 40 Degrees 34 Minutes 48.1 Seconds North; Long: 89 Degrees 07 Minutes 52.5 Seconds West. (Flag)

Percent Slope:			Depth to Saturated soil: About 25 inches (perched)			
Depth (inches)	----Brief Description of Soil Boring----				*Soil Group	*Commerical Allowable Application Rate: Gallons per Square Feet per Day
	Texture	Parent Material	Structure	Consistence		
0-15	Silty clay loam (<35% clay)	Loess	Moderate subangular blocky	Friable	6D	.62
15-21	Silt loam	Loess	Moderate subangular blocky	Friable	5D	.75
21-26	Silt loam	Loess	Weak subangular blocky	Friable	5B	.69
26-36	Silt loam	Loess	Massive	Friable	5L	.52

Boring # 3

Location: Lat: 40 Degrees 34 Minutes 48.0 Seconds North; Long: 89 Degrees 07 Minutes 52.9 Seconds West. (Flag)

Percent Slope:			Depth to Saturated soil: About 3 inches (perched)			
Depth (inches)	----Brief Description of Soil Boring----				*Soil Group	*Commerical Allowable Application Rate: Gallons per Square Feet per Day
	Texture	Parent Material	Structure	Consistence		
0-5	Silt loam	Loess	Weak subangular blocky	Friable	5B	.69
5-36	Silt loam	Loess	Massive	Friable	5L	.52

NAME: Village of Carlock
LOCATION: Seepage field site east of water tower.

DISCLAIMERS & QUALIFICATIONS:

- *The Soil Group, the Minimum Separation to Limiting Layer and the Residential Req. Absorption - sq.ft/bedroom (or the Allowable Application Rate (GPD/sq.ft.) are a part of the 2013 private Sewage Disposal Licensing Act and Code, created by the State of Illinois Department of Public Health.

- My determinations are based on the soil conditions found at the time the borings were pulled on July 17, 2014.

- **Seasonal high water table is the peak water table level and it is only this shallow for a short time. Usually it occurs in the wettest time of spring, after lots of rain and before vegetation begins to extract water and lower the water table once again. The method used to determine the seasonal high water table is by direct observation of the water table or as indicated by common <2 chroma gray mottles (using the Munsell Soil Color Charts). Common mottling is referred to as 2 to 20 percent of an observed surface. (Soil Survey Manual, USDA, Handbook #18; October, 1993; p.155). Mottles are irregular spots of different colors that are formed by the oxidization-reduction cycle of Fe and Mn following the up and down movement of the water table. This process is on the most important types of morphological indicators of soil wetness.

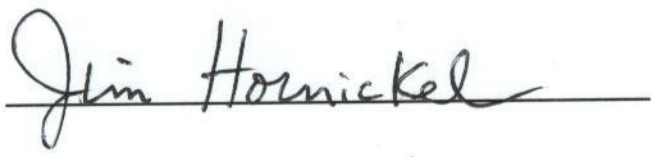
- **Caution:** Many university studies have shown that discharging water softener salts into a septic system could cause premature failure of its leach field. Also running the softener too often could cause in hydraulic overload at the leach field.

SUMMARY:

I examined the soil material from the surface in bottom of seepage field (floor) below the pipe (undisturbed) to about 36 inches. Depth of the seepage trench was very hard to determine. It ranged from approximately 41 to 48 inches from surface of the soil to bottom of seepage trench floor.

The **seasonal high water table** is at the surface in bottom of seepage field floor below the pipe that was undisturbed. Saturation was detected within the 36 inches. It looks like water was perching above the undeveloped loess material (massive).

Permeability: The least permeable soil layer has a rating of .52 GPD/sq. ft.).



DATE: July 21, 2014

Jim Hornickel
Soil Classifier
Certificate #44
Certified by the Illinois Soil Classifiers Association