

2. SEPTIC TANKS CHARACTERISTICS:

A. REINFORCED CONCRETE TANK: 28-DAY COMPRESSIVE STRENGTH > 5000 PSI WITH MINIMUM WALL THICKNESS SHOWN ON DETAIL.

B. TANK SHALL BE CERTIFIED BY DNREC.

C. MINIMUM SEPTIC TANK CAPACITY SHALL BE:

1. SEPTIC TANK 1: 1,000 GALLONS

2. SEPTIC TANKS 2 & 4: 1,500 GALLONS

3. SEPTIC TANK 3: 2,800 GALLONS

D. DIMENSIONS OF TANKS ARE SHOWN ON THE DRAWINGS.

E. MANUFACTURER SHALL BE NATIONAL CONCRETE PRODUCTS OR EQUAL.

F. ALL OPENINGS AND JOINTS OF THE SEPTIC TANK MUST BE SEALED WATERTIGHT. SEALER SHOULD BE WATERTIGHT CONCRETE (95%) AND BENTONITE (5%) GROUT MIX OR STANDARD RUBBER GASKETS.

G. ALL INLET AND OUTLET CONNECTIONS SHALL BE SANITARY TEES OR BAFFLES CONSTRUCTED OF CAST-IN-PLACE CONCRETE OR PVC.

H. ABOVE GRADE ACCESS COVERS SHALL BE WATERTIGHT AND SECURE FROM VANDALISM.

I. CONNECTIONS BETWEEN TANKS AND DOSING STATION SHALL BE 4-INCH SDR 35.

J. EFFLUENT FILTER TO BE INSTALLED BEFORE OUTLET PIPE OF SEPTIC TANK AS SHOWN ON DETAIL. FILTER SHALL HAVE 1/16" FILTRATION WITH LOCKING TAB TO SECURELY LOCK THE FILTER INTO THE EFFLUENT TEE. FILTER SHALL BE MANUFACTURED BY ZABEL ENVIRONMENTAL TECHNOLOGY OR APPROVED EQUAL.

1. 1,000 GALLON AND 1,500 GALLON TANKS: 1/16" FILTRATION MODEL: 4" DIAMETER EFFLUENT: 800 GPD MAXIMUM FLOW:

1/16" FILTRATION 2. 2,800 GALLON TANKS: A100 8x26VC MODEL: EFFLUENT: 4" DIAMETER 1,800 GPD MAXIMUM FLOW:

PUMP DOSING TANK:

- A. DOSING TANK SHALL BE 6000 GALLON SEPTIC TANK WITH 48" RISER. STATION SHALL BE PRECAST REINFORCED CONCRETE WITH 28-DAY COMPRESSIVE STRENGTH GREATER THAN 5000 PSI AND MINIMAL WALL THICKNESS AS SHOWN ON DRAWINGS. ALL OPENINGS AND JOINTS OF TANK MUST BE SEALED WATER TIGHT. SEALER SHALL BE WATER TIGHT CONCRETE (95%%) AND BENTONITE (5%%%) GROUT MIX OR STANDARD RUBBER GASKETS. ALL TANKS SHALL BE WATER TIGHT, NON-CORROSIVE, DURABLE, AND STRUCTURALLY SOUND. THE TANK SHALL BE MANUFACTURED BY NATIONAL CONCRETE PRODUCTS OR
- B. DOSING TANK HATCH SHALL BE STAINLESS STEEL WITH AUTO-LOCK HOLD OPEN ARM. HATCH SHALL HAVE CLEAR OPENING OF 47"X32". HATCH SHALL BE MODEL NUMBER RIR48 AS MANUFACTURED BY HALLIDAY PRODUCTS.
- C. DOSING TANK MUST HAVE A VENTILATION PORT EXTENDED AT LEAST SIX (6) INCHES ABOVE GRADE AND SHALL BE THREE (3) INCHES IN DIAMETER. AN INSECT AND RODENT PROOF SCREEN SHOULD BE INSTALLED ON END OF VENT EXPOSED TO OUTSIDE.

4. METER AND DISTRIBUTION VALVE VAULTS:

A. METER AND DISTRIBUTION VALVE VAULTS SHALL BE 48" IN DEPTH. VAULT SHALL BE HDPE STRUCTURAL FOAM IN MATERIAL. ACCESS COVER SHALL BE FLUSH WITH VAULT AND SHALL HAVE HEX BOLT FASTENER. VAULT SHALL BE INSTALLED IN GRASS AREA AND RATED FOR NON-VEHICULAR TRAFFIC. VAULT SHALL BE INSTALLED ON 6" STONE BEDDING. VAULT SHALL BE SUPPLIED BY CARSON INDUSTRIES, LLC OR EQUAL.

B. METER VAULT SHALL BE AS FOLLOWS:

1. ACCESS COVER (CLEAR OPENING): 2. ACCESS COVER MODEL NUMBER: 2424-3B

VAULT MODEL NUMBER: 2424-18

C. DISTRIBUTION VAULT SHALL BE AS FOLLOWS:

 ACCESS COVER (CLEAR OPENING): 36"x36" 2. ACCESS COVER MODEL NUMBER: 3636-B

5. DOSING PUMPS:

A. FURNISH AND INSTALL TWO (2) SUBMERSIBLE HIGH HEAD EFFLUENT PUMPS.

B. PUMP SHALL BE MANUFACTURED BY ORENCO SYSTEMS OR EQUAL. PUMPS SHALL HAVE THE FOLLOWING CHARACTERISTICS:

3636-18

RATED CAPACITY:

VAULT MODEL NUMBER:

43 GPM AT 35' TDH

0.5 HP, 300 RATED CYCLES/DAY, 1 PHASE, 120 VOLT HORSEPOWER:

3. ORENCO PUMP MODEL NUMBER: PJ 55 05 1 1

4. PUMP WEIGHT: 22.5 LBS

- C. PUMPS SHALL HAVE THE CAPABILITY OF TRANSPORTING SCREENED EFFLUENT FROM SEPTIC TANKS TO DISTRIBUTION SYSTEM. PUMP SHALL BE UL AND CSA LISTED AND CONSTRUCTED OF LIGHT WEIGHT CORROSION RESISTANT STAINLESS STEEL AND ENGINEERED PLASTICS. PUMPS SHALL HAVE MINIMUM 24-HOUR RUN-DRY CAPABILITY WITHOUT WATER LUBRICATION 1/8-INCH BYPASS ORFICE TO ENSURE FLOW RECIRCULATION FOR MOTOR COOLING AND PREVENTION OF AIR BIND, REPAIRABLE LIQUID END, FRANKLIN MOTOR RATED FOR CONTINUOUS OPERATION AND FREQUENT CYCLING, AND TYPE SJOOW MOTOR CABLE. PUMPS SHALL BE CAPABLE OF OPERATION WITH AUTOMATIC DISTRIBUTION VALVE.
- D. THE PUMPS SHALL BE SET ON A LEAD/LAG, ALTERNATING OPERATION TO MINIMIZE WEAR ON ONE (1) PUMP. EACH PUMP WILL DOSE ONE (1) DISPOSAL AREA AT A TIME. A MINIMUM OF THREE (3) DOSE CYCLES SHOULD BE SCHEDULED PER DAY.
- 1. DOSING SCHEDULE FOR PHASE 1:

a. TOTAL FLOW: 1,370 GALLONS

b. TOTAL DISPOSAL AREA: 5,000 SQ.FT., (2) 2,500 SQ.FT. BEDS

c. TOTAL DOSING VOLUME: 258 GALLONS PER DOSE

d. DOSES PER DAY:

DOSING SCHEDULE FOR FUTURE PHASE:

a. TOTAL FLOW: 3,220 GALLONS

b. TOTAL DISPOSAL AREA: 10,000 SQ.FT., (4) 2,500 SQ.FT. BEDS

c. TOTAL DOSING VOLUME: 258 GALLONS

d. DOSES PER DAY: 13

- E. DOSING BETWEEN BEDS WILL BE CONTROLLED VIA A DISTRIBUTING VALVE CAPABLE OF AUTOMATIC DISTRIBUTION BETWEEN BEDS. VALVE IS MECHANICALLY OPERATED AND ACTUATION SHALL BE ACCOMPLISHED VIA COMBINATION OF PRESSURE AND FLOW. SHALL BE INSTALLED PER DRAWINGS ON PUMP EFFLUENT IN VALVE/ METER VAULT. DISTRIBUTING VALVE SHALL BE MANUFACTURED BY ORENCO SYSTEMS OR EQUAL.
- 1. DISTRIBUTION VALVE SHALL BE THE FOLLOWING SPECIFICATIONS:

a. MODEL NUMBER: V 6404 A

b. PHASE 1: 2-WAY CAM

C. FUTURE PHASE: 4-WAY CAM

- 2. DURING PHASE 1 OPERATION INSTALL 2-WAY CAM AND CAP TWO (2) OUTLETS OF DISTRIBUTION VALVE LEADING TO UNINSTALLED BEDS. DURING FUTURE OPERATION REPLACE VALVE WITH 4-WAY CAM AND UNPLUG OUTLETS. CONTRACTOR SHALL SUPPLY BOTH 2-WAY AND 4-WAY CAM.
- F. INSTALL FLOW METER ON PUMP EFFLUENT WITHIN METER VAULT. METER SHALL UTILIZE OSCILLATING PISTON AND MAGNETIC DRIVE REGISTER. SHALL DISPLAY ANALOG DIAL WITH AN ODOMETER-TYPE TOTALIZER AND CENTER SWEEP HAND.
- 1. METER SHALL BE MANUFACTURED BY ORENCO SYSTEMS OR EQUAL.

a. MODEL NUMBER: FM 200

b. FLOW RANGE: 8-80 GPM

C. LINE SIZE:

- G. THE PUMP DISCONNECT SYSTEM SHALL BE PVC PUMP DISCHARGE WITH DISCONNECT LOCATED IN HORIZONTAL POSITION BETWEEN CHECK AND GATE VALVE.
- H. BALL CHECK VALVE SHALL BE TRUE UNION DESIGN, MANUFACTURED FROM PVC TYPE 1, GRADE 1 (CELL CLASSIFICATION 1244-B) CONFORMING TO ASTM D-1784 WITH VITON O-RING SEALS, LUBRICATING TEFLON SEATS AND THREADED OR SOCKET CONNECTION.
- I. GATE VALVES SHALL BE MANUFACTURED FROM PVC WITH HI-IMPACT PVC TYPE II PER ASTM D-1785, TEFLON THRUST RUNGS, EPDM O-RING SEALS AND GASKETS AND FLANGED
- J. CHECK VALVES SHALL BE HI-IMPACT PVC TYPE II PER ASTM D-1785. SWING GATE SHALL BE COMPOSED OF EPDM.
- 6. PUMP DOSING CHAMBER CONTROL PANEL:
- A. THE CONTRACTOR SHALL INSTALL A DUPLEX WEATHER-PROOF CONTROLLER WITH ALTERNATOR AND ALARM. PANEL SHALL BE TIMER BASED. THE PUMPS WILL RUN ON TIMER CYCLES WHEN WATER LEVEL IS BETWEEN "TIMER ON/OFF" FLOAT OR "TIMER OVERRIDE" FLOAT. WHEN WATER LEVEL DROPS BELOW "TIMER ON/OFF", FLOAT TURNS OFF TIMER AND PUMPS. WHEN WATER LEVEL IS ABOVE "TIMER OVERRIDE", PUMPS WILL RUN CONSECUTIVE "ON" CYCLES UNTIL WATER LEVEL DROPS. PUMP CONTROL PANEL SHALL BE SUPPLIED BY PUMP SUPPLIER. "HIGH WATER" AND "LOW WATER" FLOAT WILL ACTIVATE OUTSIDE FLASHING ALARM AND HORN. PUMP WILL NOT BE ACTIVATED BY FLOATS WHEN THE H-O-A SWITCH IS IN THE OFF POSITION. CONTROL PANEL SHALL INCLUDE AN ADJUSTABLE TIMER. THE PUMPS SHALL BE SCHEDULED TO OPERATE AT ALTERNATING TIMES. ORENCO DAX SERIES DUPLEX CONTROL PANEL DAX-1-IRPTDSRAHTPRLPLSASA.
- B. THE "TIMER ON/OFF" FLOAT CONTROL WILL BE SET TO TURN PUMPS OFF AT LOW WATER LEVELS IN THE PUMP STATION AND BEGIN TIMER CYCLE WHEN WATER LEVEL IS ABOVE FLOAT. FLOATS SHALL BE MECHANICAL TYPE SEALED IN POLYURETHANE AND WEIGHTED TO HOLD POSITION IN TANK. THE FLOAT SHALL BE ORENCO.
- C. CONTROL PANELS SHALL BE NEMA-4X, STAINLESS STEEL. PANELS SHALL BE MOUNTED LOCALLY TO THE PUMPS. PANELS SHALL BE SUPPLIED WITH 120V, SINGLE PHASE, AND TWO (2) ADJUSTABLE MOTOR OVERLOAD PROTECTORS.
- D. ALL PUMP ELECTRICAL CONNECTIONS AND ALARM CONTROLS SHALL BE CORROSION RESISTANT AND WATERPROOF.
- 7. GRAVITY SEWER MUST BE SDR-35 AND MEET ASTM D-3034 SPECIFICATIONS FOR FOUR (4) INCH PIPE.
- DISPOSAL PIPING:
- A. ALL PRESSURE TRANSMISSION PIPES SHALL BE SCHEDULE 40 OR SDR-26 PVC PIPE OR EQUAL.
- B. ALL PRESSURE MANIFOLD PIPES SHALL BE SCHEDULE 40 OR SDR-26 PVC PIPE OR EQUAL.
- C. ALL PRESSURE DISTRIBUTION LATERALS SHALL BE SCHEDULE 40 OR SDR-26 PVC PIPE. MINIMUM HOLE DIAMETERS OF PERFORATED LATERALS SHALL BE 5/32" AND SPACING INTERVALS OF 68.5" ON CENTER ALONG THE LENGHT OF THE PIPE.
- D. THE SIZE AND LENGHT OF PIPES ARE SHOWN ON PLANS. ALL TRANSMISSION AND MANIFOLD PIPING SHALL BE PLACED FOUR (4) FEET BELOW GRADE.
- 9. CONTRACTOR SHALL PROVIDE ALL NECESSARY STAKE-OUT OF LINE AND GRADE FOR PIPE INSTALLATION.
- 10. EXISTING UTILITIES AND STRUCTURES:
- A. EXISTING POTABLE WATER LINES SHOULD BE LOCATED PRIOR TO ANY EXCAVATION.
- B. CONTRACTOR SHALL REPAIR OR REPLACE IN KIND ANY EXISTING FEATURES DAMAGED OR DESTROYED DURING CONSTRUCTION.
- C. CONTRACTOR SHALL NOTIFY MISS UTILITY (1-800-282-8558) AT LEAST 48 HOURS PRIOR TO EXCAVATION TO HAVE UNDERGROUND UTILITIES LOCATED AND MARKED.
- D. UPON CONSTRUCTION OF THE PROPOSED EFFLUENT PUMP STATION THE CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING DRAINFIELD WJ=HICH SHALL BE ABANDONED IN A PROPER MANNER. EXISTING SEPTIC TANK SHALL BE DRAINED AND CONTRACTOR SHALL BE RESPONSIBLE FOR PUMP, HAUL AND DISPOSAL COSTS ASSOCIATED WITH THIS ABANDONMENT OF SYSTEM.
- 11. EXECUTION:
- A. FOUR (4) SETS OF SHOP DRAWINGS FOR SPECIFIED MATERIAL SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- B. CONTRACTOR SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE FOR INSTALLING SIMILAR ON-SITE WASTEWATER TREATMENT SYSTEMS.
- C. ALL EQUIPMENT SHALL INCLUDE MINIMUM ONE (1) YEAR WARRANTY.
- D. MANUFACTURER OF ALL EQUIPMENT SHALL FURNISH AN OPERATING TECHNICIAN TO START UP THE GUARANTEED CORRECT OPERATION OF THE SYSTEM, INCLUDING DOSING STATION. TECHNICIAN SHALL BE AVAILABLE UNTIL EVERYTHING ON THE JOB FUNCTIONS CORRECTLY. TECHNICIAN SHALL RETURN TO THE JOB TO MAKE REPLACEMENTS OF EQUIPMENT WHEN DEEMED

SPECIFICATIONS

Hilary A. Moone

DNREC APPROVED

SEP 2 9 2008 SCALE AS NOTED SHEET NO. DESIGN BY KBJ DRAWN BY RLC CHECKED BY GMB FILE : 2007104.B

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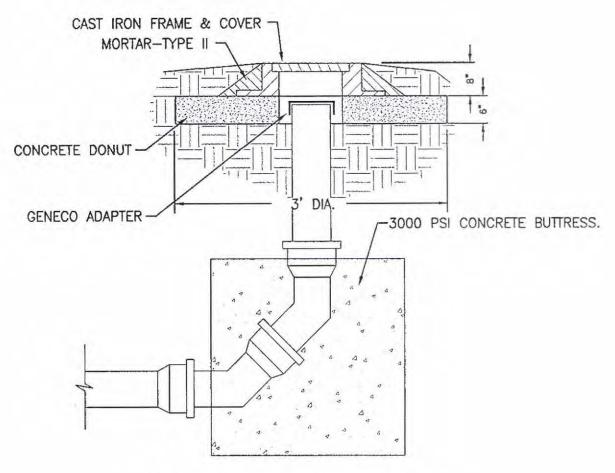
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PRELIMINARY PLANS PRINTS ISSUED FOR: REVIEW

DATE : SEPT. 2008 DRAWING 15 OF 15

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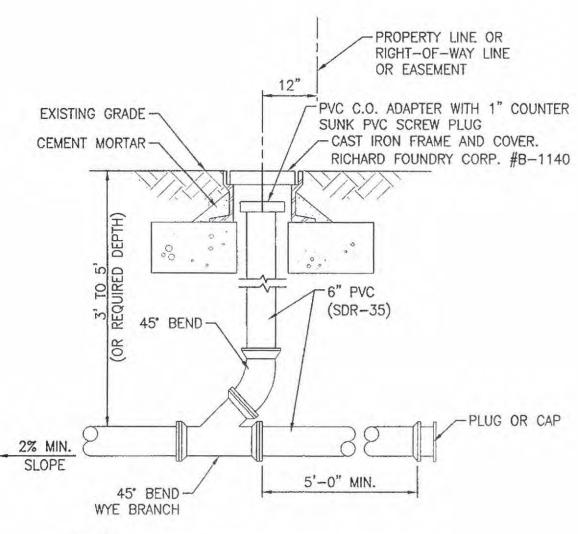


NOTES:

- CAST IRON FRAME & COVER SHALL BE B-1140 FOR 6" TERMINAL CLEANOUTS.
- 2. 8" CLEANOUTS SHALL HAVE GENCO ADAPTERS AND B-1180 CAST IRON FRAME & COVERS.
- 3. ALL PIPING SHALL BE SDR-35 PVC.
- 4. MAINTAIN A 10' SEPARATION BETWEEN SEWER AND WATER.

EXISTI

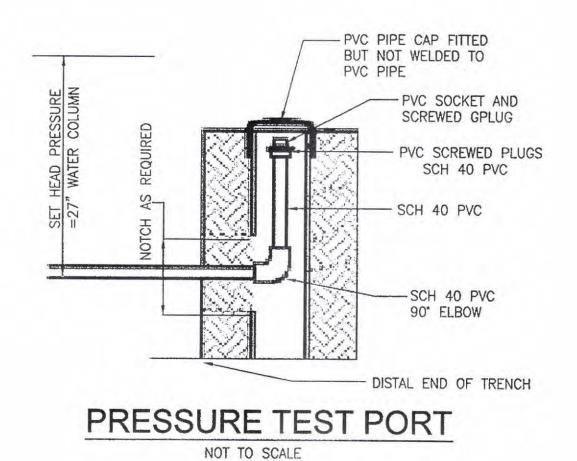
TERMINAL CLEANOUT NO SCALE

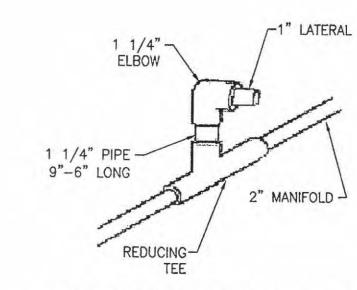


NOTES:

- 1. C.O. NOT TO BE LOCATED IN DITCH, SWALE, ETC.
- MAINTAIN 10' MIN. SEPARATION BETWEEN WATER AND SEWER LINES.
- 3. LATERAL AND CLEANOUT TO BE 8" WHERE INDICATED ON PLAN. ADAPTER TO BE GENCO MODEL 8COH WITH #B-1180 FRAME AND COVER

STANDARD LATERAL CLEANOUT NO SCALE





MANIFOLD AND LATERAL CONNECTION DETAIL NOT TO SCALE

NO. REVISIONS DATE

1 CHANGES MADE PER DNREC 7-18-08
REVIEW COMMENTS 9-02-08

PRELIMINARY PLANS
PRINTS ISSUED FOR:
• REVIEW



WILLOW CREEK PLAZA SUSSEX COUNTY, DELAWARE



SEPTIC DETAILS

SCALE AS NOTED SHEET NO.

DESIGN BY KBJ

DRAWN BY RLC

CHECKED BY

: SEPT. 2008 DRAWING 14 OF 1

EXCAVATE 44"
OR TO BENEATH
LOAMY ARGILLIC
HORIZON

PLATE TOPSOIL, SEED & MULCH OR PROVIDE SOD COVER

CRADE

CROWN GENTLY FOR DRAINAGE/SETTLEMENT

CLEAN NATIVE SOIL BACKFILL

WASHED AGGREGATE

FILTER FABRIC
OVER AGGREGATE

OVER AGGREGATE

1 MINIMUM
SUITABLE SOIL

BED CROSS SECTION

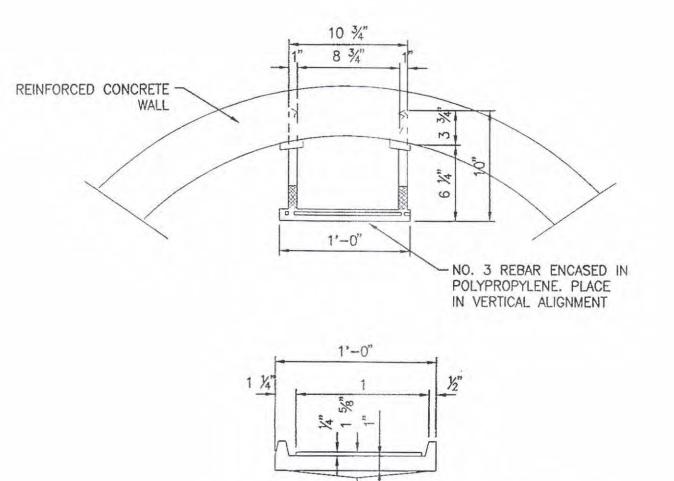
NOTES: 1. BED SHALL BE SAND LINED PER EXHIBIT—S.

EXCAVATE SAND—LINING TO 44 INCHES BENEATH THE

EXISTING GRADE.

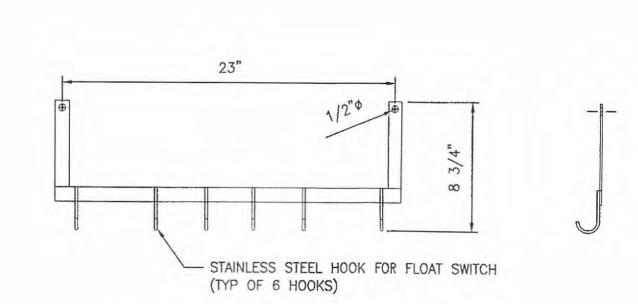
 AVERAGE DEPTH TO SEASONAL HIGH WATER TABLE BASED ON COLLECTED WELL DATA FROM DECEMBER 2007 TO MAY 2008 IS 145.8 INCHES.

PRESSURE-DOSED FULL DEPTH (SAND-LINED)/BED DESIGN



MANHOLE STEP DETAIL

NO SCALE



CABLE HOLDER

NOTE: CABLE HOLDER SHALL BE TYPE-316 STAINLESS STEEL.

DNREC APPROVED

SEP 2 9 2008

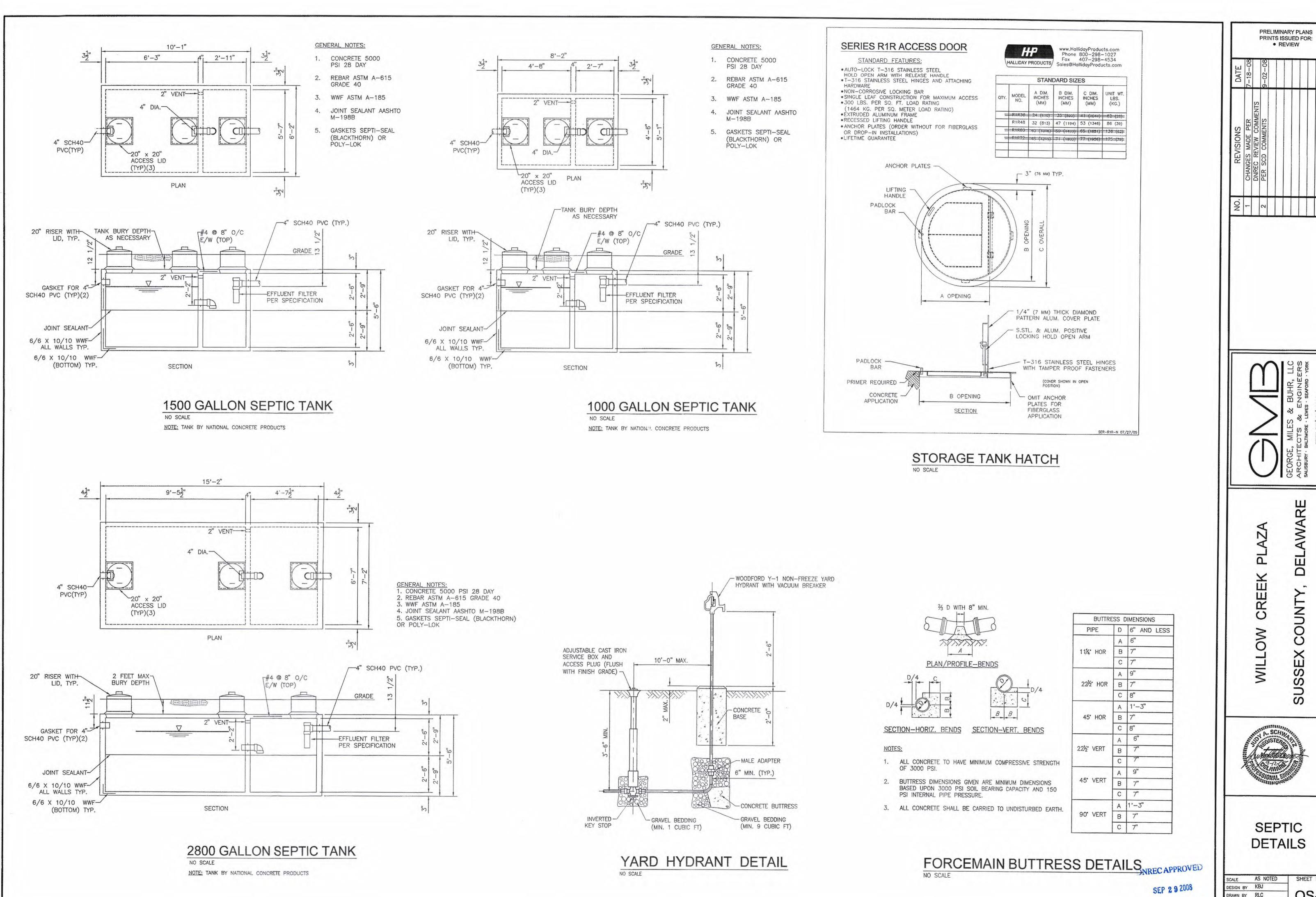
Hilary A. Moone

-5 Projects\2007\2007\104_B Willow Creek Plaza Site Engl/Drawings\Working Drawings\OS 5 SEPTIC DETAILS dwg, 9H2/2008 9 27 42 AM, mend_HP4000LANDDEV pc3

PLOT CODE
PEN4-CYAN
HES (.25mm) .014 INCHES (.35mm

PEN2-YELLOW PEN3-GREEN

PEN1-RED

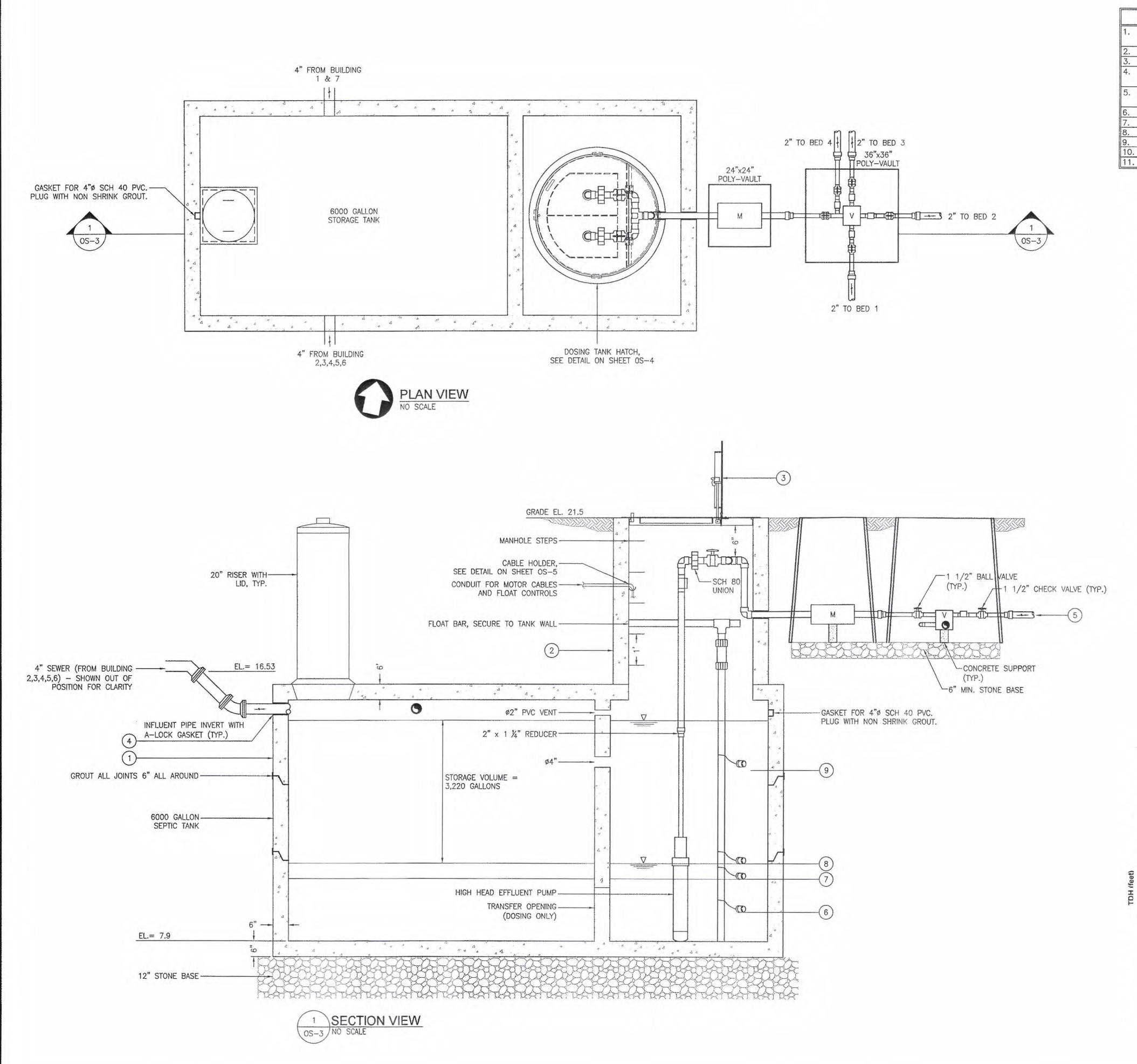


3 \Projects\200712007104-B Willow Creek Plaza Site EnglOrawings\Working Drawings\OS-4 SEPTIC DETAILS dwg. 9/12/2008 9 27 35 AM, mmd, HP4000LANDDEV pc3

SHEET NO. DRAWN BY RLC CHECKED BY GMB FILE : 2007104.B

: SEPT. 2008 DRAWING 13 OF 15

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G VProjects/2007/2007/104 B Willow Creek Plaza Site EnglDrawings/Working Drawings/OS 3 DOSING PUMP STATION dwg. 9/12/2008 9 27 26 AM. mmd, HP4000LANDCE V pc.3.

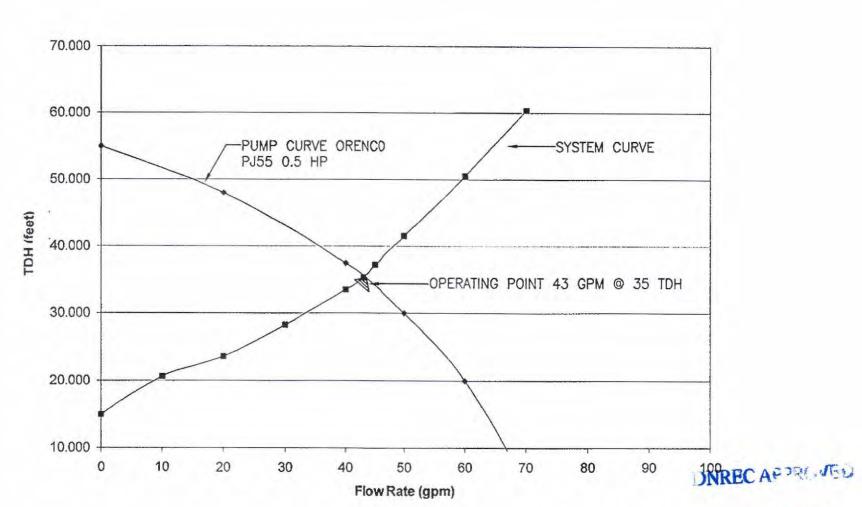
		T	
1.	PRECAST CONCRETE	LENGTH x WIDTH	191"x89"
	PUMP TANK	VOLUME (GALLON)	6000
2.	TANK RISERS		48"
3.	HATCH (CLEAR OPENING)		47"x32"
4.	INFLUENT PIPE	PIPE INSIDE DIA.	4"
		INVERT ELEVATION	15.19
5.	PUMP STATION DISCHARGE	SIZE	2"
	PIPE & FITTING DIA.	© EL. − OUT	17.5
6.	LOW ALARM		9.4
7.	TIMER ON/OFF		9.9
8.	TIMER OVERRIDE		10.4
9.	HIGH ALARM		15.0
10.	DOSE VOLUME (GALLONS)		258
11.	STORAGE VOLUME (GALLONS	5)	3,220

- 1. PHASE 1 FLOW IS 1370 GPD. PHASE 2 FLOW IS 3220 GPD. PUMP RATE BASED ON NECESSARY FLOW RATE THROUGH PIPE NETWORK TO PROVIDE MINIMUM HEAD OF 2.5 FEET AT LAST ORIFICE (0.5 GPM/ORIFICE).
- 2. PUMP WEIGHT IS 22.5 LBS. CRANE NOT PROVIDED FOR PUMP REMOVAL.
- 3. SUPPORT PVC PUMP DISCHARGE PIPING TO CONCRETE AS NECESSARY BUT MUST REMAIN REMOVABLE. PUMP SHALL BE SECURE DURING OPERATION.
- 4. 6000 GALLON SEPTIC TANK SHALL BE REINFORCED AS NECESSARY TO ALLOW INCREASED BURY DEPTH.

DOSING SCHEDULE

DOSING SCHEDULE - PHASE 1		
PUMP RUN TIME:	6	MINUTE
PUMP OFF TIME:	4.7	HOURS
NUMBER OF DOSES PER DAY:	5	1100110
OVERRIDE FLOAT ACTIVATED:	9	
PUMP RUN TIME	6	MINUTE
PUMP OFF TIME		
TOME OF THE	<1.0	MINUTE
DOSING SCHEDULE - PHASE 2		
PUMP RUN TIME:	6	MINUTE
PUMP OFF TIME:		HOURS
NUMBER OF DOSES PER DAY:	13	1100113
OVERRIDE FLOAT ACTIVATED:	13	
PUMP RUN TIME		AUAH ITC
	6	MINUTE
PUMP OFF TIME	<1.0	MINUTE

DURING NORMAL FLOWS THE LEVEL IN THE TANK WILL REMAIN BETWEEN "TIMER ON AND OFF" FLOAT AND "TIMER OVERRIDE" FLOAT. DURING PHASE 1 THE PUMP WILL RUN FOR 6 MINUTES AND REST FOR 4.7 HOURS. THE PUMPS, ALTERNATING, WILL RUN A TOTAL OF FIVE (5) TIMES A DAY. DURING PHASE 2 THE PUMPS WILL RUN FOR SIX (6) MINUTES AND REST FOR 1.75 HOURS. THE PUMPS WILL RUN THIRTEEN (13) TIMES A DAY. IF LOW FLOWS ARE EXPERIENCED AND "TIMER ON AND OFF" FLOAT IS NOT ACTIVATED THE PUMPS WILL NOT RUN, THIS GUARANTEES THE PUMP WELL WILL NOT RUN DRY. IF HIGH FLOWS ARE EXPERIENCED AND "TIMER OVERRIDE" FLOAT IS ACTIVATED, THE PUMPS WILL RUN FOR SIX (6) MINUTES TO ONE DRAINFIELD AND REST FOR LESS THAN ONE (1) MINUTE, THEN RUN AGAIN FOR SIX (6) MINUTES TO THE OTHER DRAINFIELD. THIS PATTERN WILL CONTINUE UNTIL WATER LEVEL DROPS BELOW "TIMER OVERRIDE" FLOAT.



SEP 2 9 2008

Hilary A. Moore

	PRINTS ISSUED FOR: ● REVIEW								
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CHOCONO	REVISIONS	CHANGES MADE PER	DNREC REVIEW COMMENTS	PER SCD COMMENTS					
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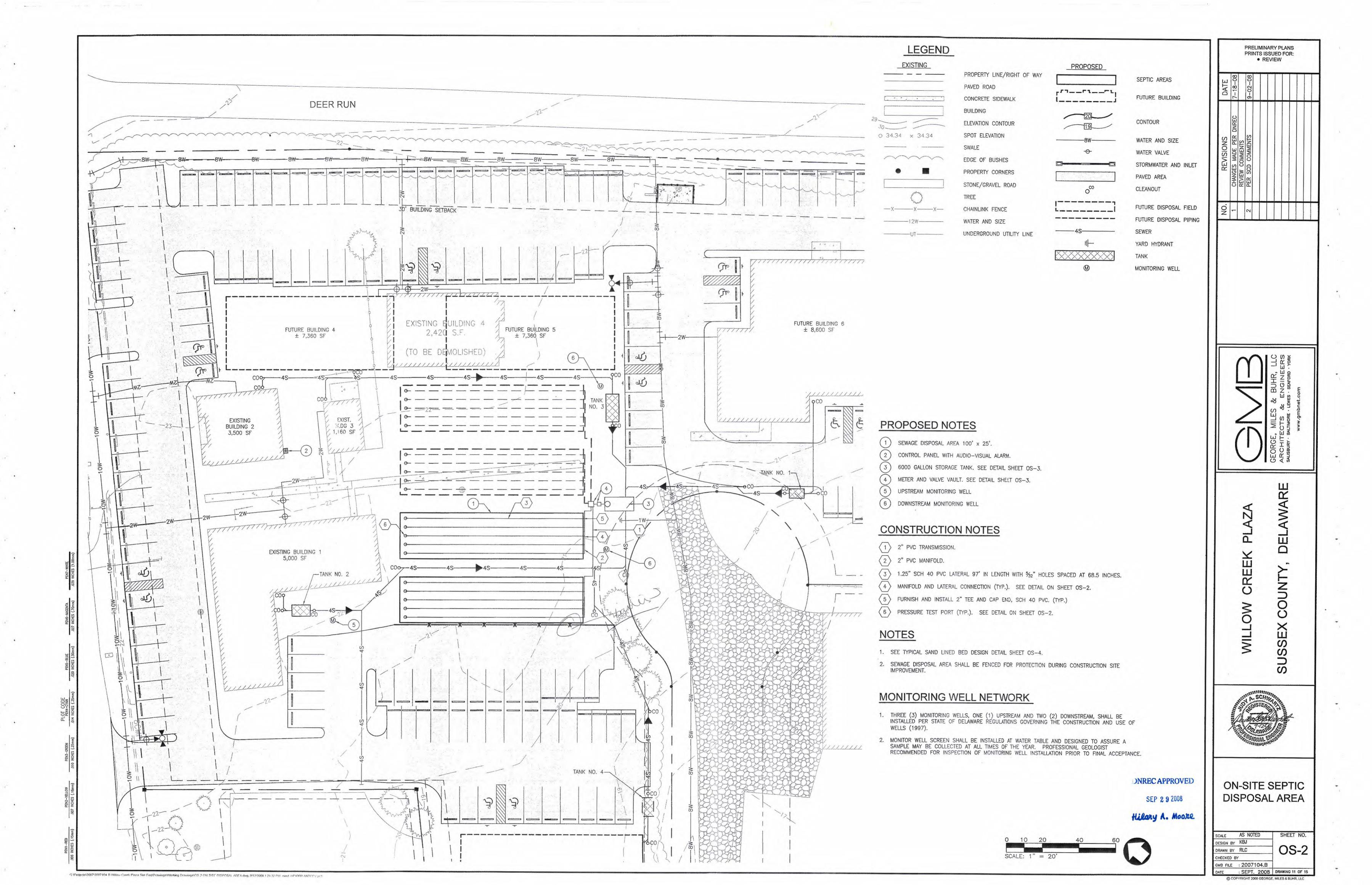
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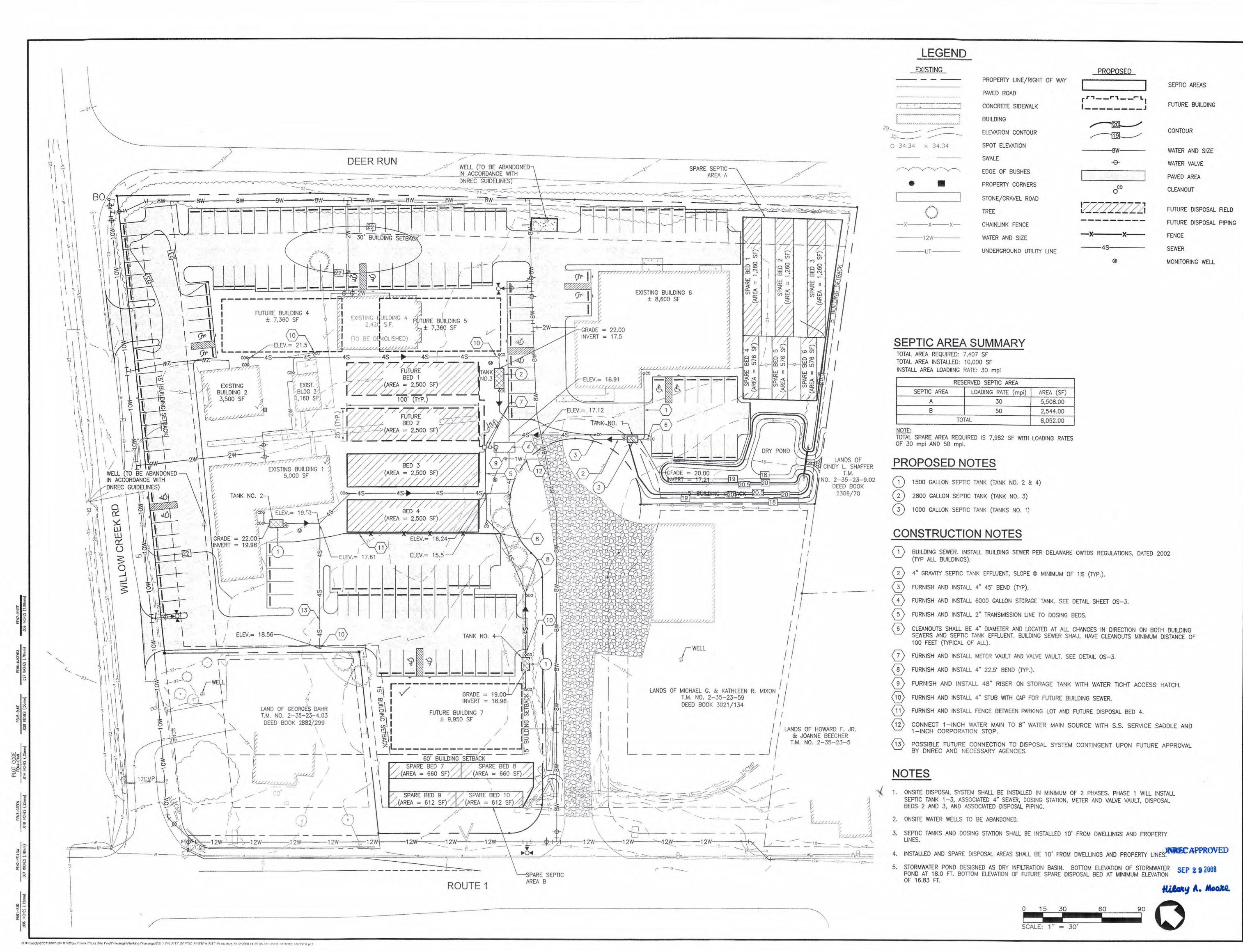


DOSING **PUMP** STATION

SCALE AS NOTED SHEET NO. DESIGN BY KBJ GMB FILE : 2007104.B

DATE : SEPT. 2008 DRAWING 12 OF 15





NO. REVISIONS DATE

1 CHANGES MADE PER DNREC 7–18–08

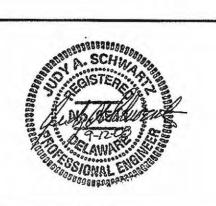
REVIEW COMMENTS 9–02–08

2 PER SCD COMMENTS 9–02–08

Amainsa subject to the standard standard



WILLOW CREEK PLAZA USSEX COUNTY DELAWAR



ON-SITE SEPTIC SYSTEM SITE PLAN

SCALE AS NOTED SHEET NO.

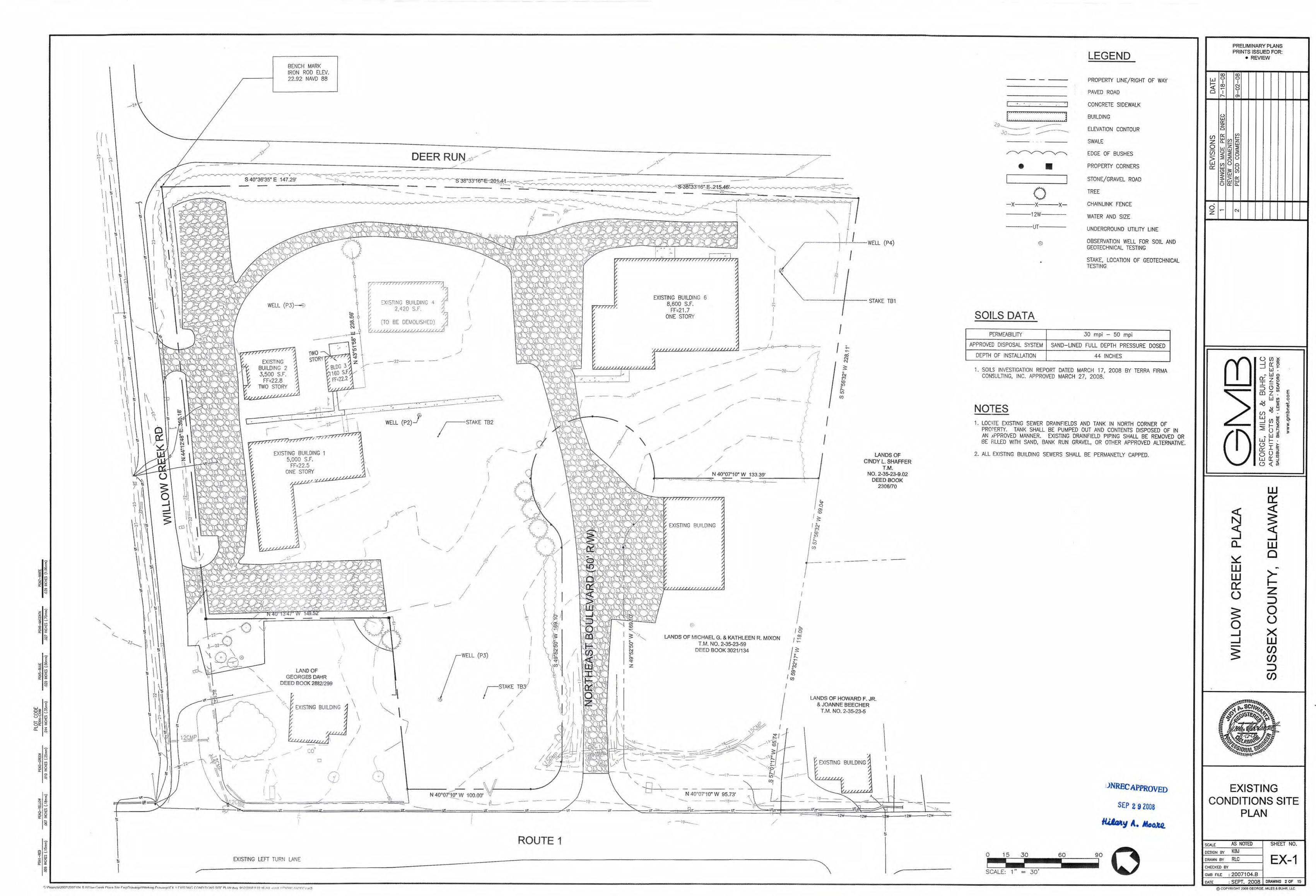
DESIGN BY KBJ

DRAWN BY RLC

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GMB FILE : 2007104.B

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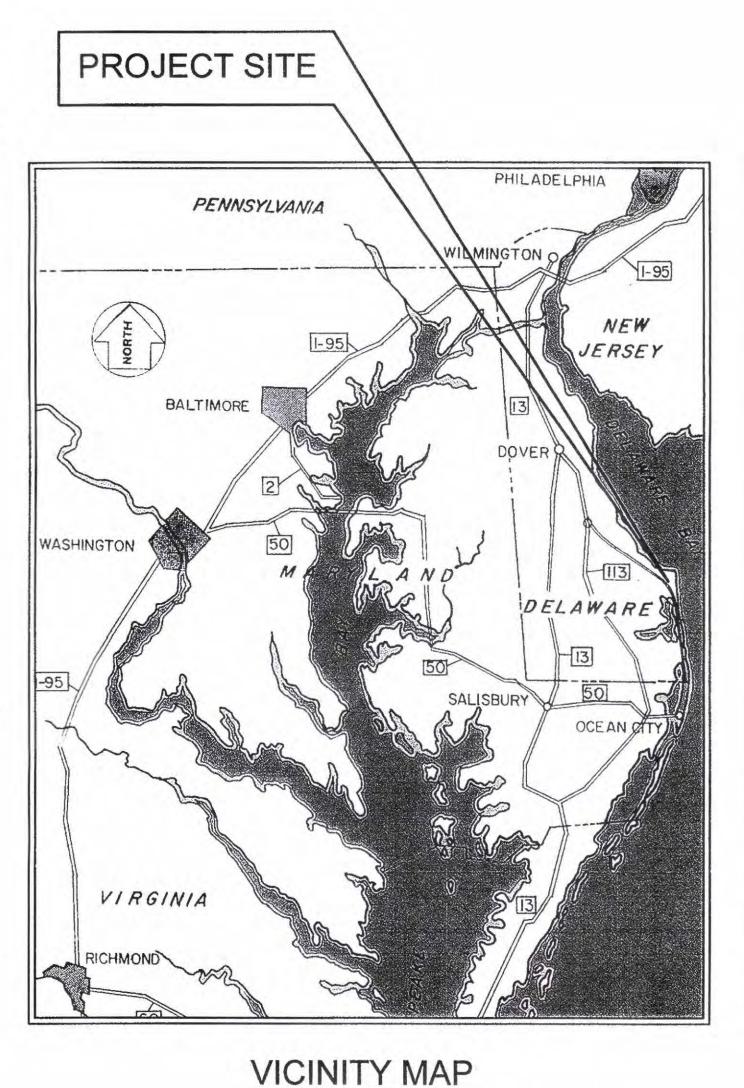
WILLOW CREEK PLAZA SUSSEX COUNTY, DE

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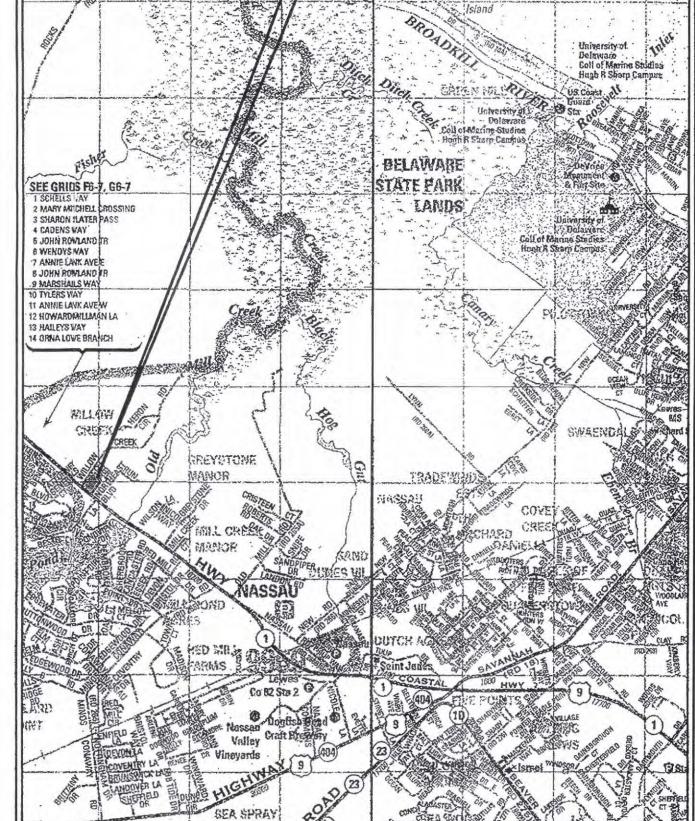
GENERAL NOTES

- BOUNDARY AND TOPOGRAPHIC SURVEY WAS PREPARED BY SIMPLER SURVEYING AND ASSOCIATES DATED MAY 2005, REVISED JULY 2006.
- CONTRACTOR SHALL NOTIFY MISS UTILITY (1-800-282-8555) AT LEAST 48 HOURS PRIOR TO EXCAVATION TO HAVE UNDERGROUND UTILITIES LOCATED AND MARKED. THE CONTRACTOR SHALL NOTIFY ALL UTILITY OWNERS PRIOR TO ANY EXCAVATION.
- 3. ALL BACKFILL AND DISTURBED AREA TO BE SEEDED AND MULCHED WITH 4" OF TOPSOIL TO BE PLACED IN BACK FILL AREAS.
- 4. EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE RECORDS AND ARE FOR THE CONTRACTOR'S CONVENIENCE. THERE IS NO GUARANTEE AS TO THEIR ACCURACY IN PLAN AND PROFILE. THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATION AND TEST—PIT EXISTING UTILITIES AS REQUIRED. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY TO HIS OWN SATISFACTION, THE DEPTH AND LOCATION OF UNDERGROUND UTILITIES BEFORE CONSTRUCTION BEGINS AND PROVIDE TIMELY ADVANCE NOTICE TO OWNER OF ANY CONFLICT. ALL DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
- 5. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY STAKE OUT OF LINE AND GRADE FOR PIPE INSTALLATION.
- 6. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT, LATEST EDITION, AND ALL RULES AND REGULATIONS THERETO.
- 7. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF ALL PERMITS SECURED.
- 8. USE ONLY SUITABLE AND APPROVED GRANULAR MATERIAL FOR BACK FILLING OF TRENCHES.
- 9. ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- 10. CONTRACTOR SHALL DETERMINE ALL RIGHT-OF-WAY LINES AND PROPERTY LINES TO HIS OWN SATISFACTION. ALL CONSTRUCTION ACTIVITIES ARE TO TAKE PLACE IN THE RIGHT-OF-WAY OR WITHIN DESIGNATED EASEMENTS.
- 11. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THESE PLANS, NOTES AND SPECIFICATIONS, THE REQUIREMENTS OF THE SOIL CONSERVATION DISTRICT AND THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL.
- 12. THE CONTRACTOR SHALL REPAIR OR REPLACE IN KIND ANY EXISTING FEATURES DAMAGED OR DESTROYED DURING CONSTRUCTION UNLESS OTHERWISE NOTED FOR REMOVAL.
- 13. PROVIDE A MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER LINES OF 10'-0".

 ALLOW 18" OF VERTICAL SEPARATION ON PERPENDICULAR CROSSINGS. WHERE PROPOSED STORM SEWERS CROSS SANITARY SEWERS, A MINIMUM OF 12" VERTICAL CLEARANCE SHALL BE PROVIDED. IF MINIMUM CLEARANCE CANNOT BE OBTAINED, A CONCRETE ENCASEMENT SHALL BE INSTALLED ON THE LOWER UTILITY A MINIMUM OF 10 FT. ON EITHER SIDE OF THE CROSSING.
- SITE EVALUATION FOR WASTE DISPOSAL SYSTEM PREPARED BY TERRAFIRMA CONSULTING, LLC. DATED MARCH 2008.
- 15. ZONING IS C-1.



SCALE: 1" = 20 MILES







WILLOW CREEK PLAZA

LIST OF DRAWINGS

GENERAL

G-1 TITLE SHEET

EXISTING

EX-1 EXISTING CONDITIONS SITE PLAN

SEDIMENT AND EROSION CONTROL

ES-1 SEDIMENT & EROSION CONTROL SITE PLAN
ES-2 SEDIMENT & EROSION CONTROL DETAILS
ES-3 SEDIMENT & EROSION CONTROL DETAILS

ES-4 SEDIMENT & EROSION CONTROL DETAILS

WATER

W-1 WATERLINE SITE PLAN
W-2 WATERLINE DETAILS

W-3 WATERLINE DETAILS & PROFILE

ON-SITE

OS-1 ON-SITE SEPTIC SYSTEM SITE PLAN
OS-2 ON-SITE SEPTIC DISPOSAL AREA

OS-3 DOSING PUMP STATION

OS-4 SEPTIC DETAILS

OS-5 SEPTIC DETAILS
OS-6 SPECIFICATIONS

SITE DATA

SITE TAX MAP: 2-35-23-4.10

ADDRESS: 16287 WILLOW CREEK RD LEWES, DE 19958

WEST QUAKER HILL APARTMENTS

I.S. CLEVELAND AVE.
WILMINGTON, DE 19805

CONTACT: LARRY DISABATINO

CIVIL ENGINEER: GEORGE, MILES AND BUHR

206 WEST MAIN STREET SALISBURY, MD 21801

CONTACT: KATHERINE B. JOHNSON

GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · LEWES · SEAFORD · YORK
206 DOWNTOWN PLAZA
SALISBURY, MARYLAND 21801
410-742-3115, FAX 410-548-5790

APRIL 2008

DNREC APPROVED

SEP 2 9 2008

Hilary A. Mooke

S TITLE SHEET G-1 HECKED BY

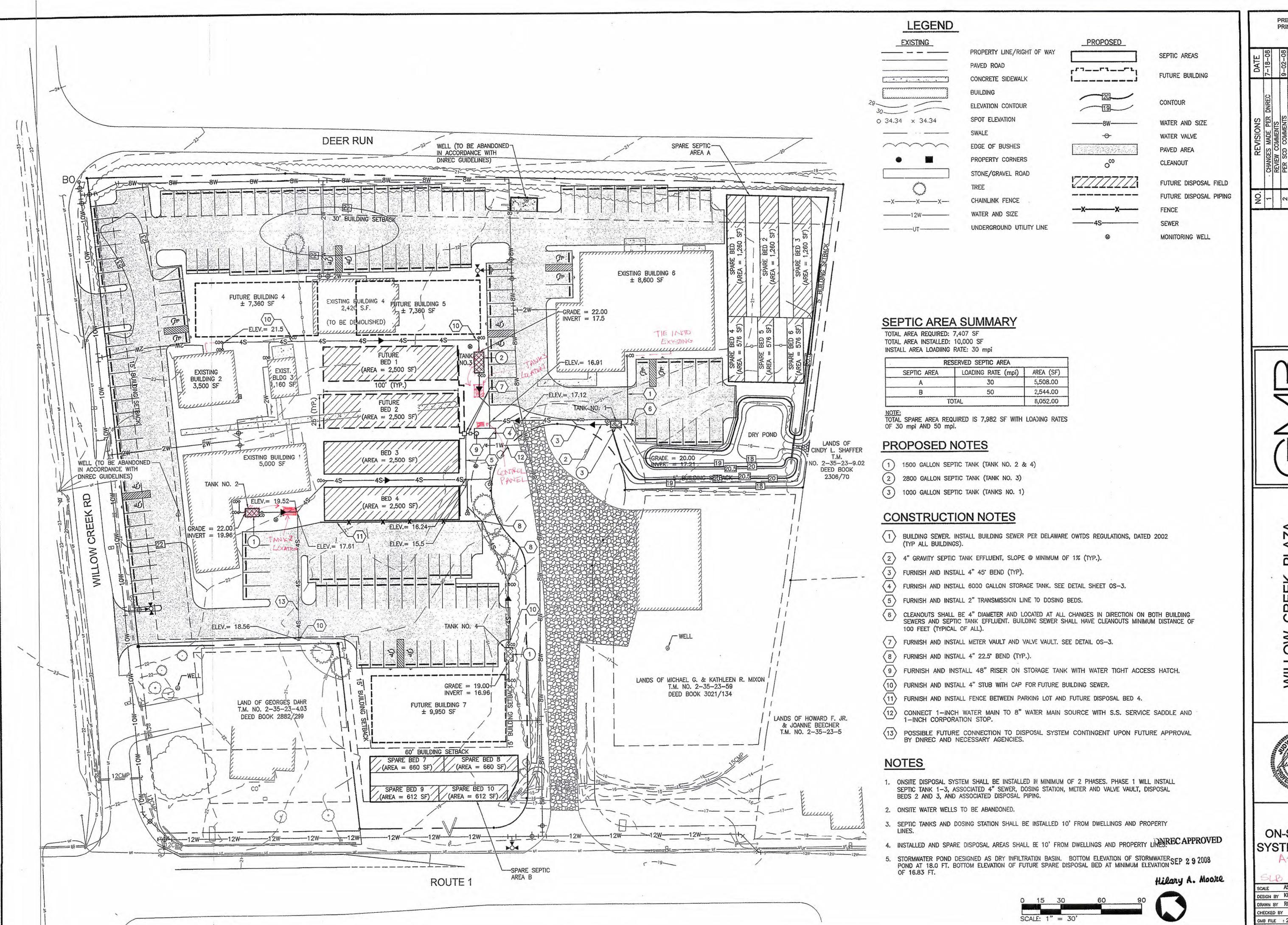
GMB FILE : 2007104.B

TE : SEPT. 2008 DRAWING 1 OF 15

PRELIMINARY PLANS PRINTS ISSUED FOR:

REVIEW

APKIL



GAProjects/2007/2007 (DA B VALLOW Creek Plaza Site Englithmologe/Working Drawings/OS 1 ON SITE SEPTIC SYSTEM SITE PLAN dup. D/12/2008 11:25:46 AM, mmd HP40001 ANDDEV pc3

NO. REVISIONS DATE

1 CHANGES MADE PER DNREC 7–18–08

2 REVIEW COMMENTS 9–02–08

3 SUATE AND CHANGES MADE PER DNREC 7–18–08

3 PER SCD COMMENTS 9–02–08

AGINGAL STANIAL SCO COMMENTS 9–02–08

CHANGES MADE PER DNREC 7–18–08

CHANGES MADE PER DNREC 7–18–18

CHANGES MADE PER DNREC 7–18

CHANGES

ORGE, MILES & BUHR, LLC RCHITECTS & ENGINEERS ISBURY - BALTIMORE - LEWES - SEAFORD - YORK www.gmbnet.com

SUSSEX COUNTY, DELAWAR



ON-SITE SEPTIC SYSTEM SITE PLAN

SUB 10/5/09

SCALE AS NOTED SHEET NO.

DESIGN BY KBJ

DRAWN BY RLC

CHECKED BY

GMB FILE : 2007104.B

DATE : SEPT. 2008 DRAWING 10 OF 15