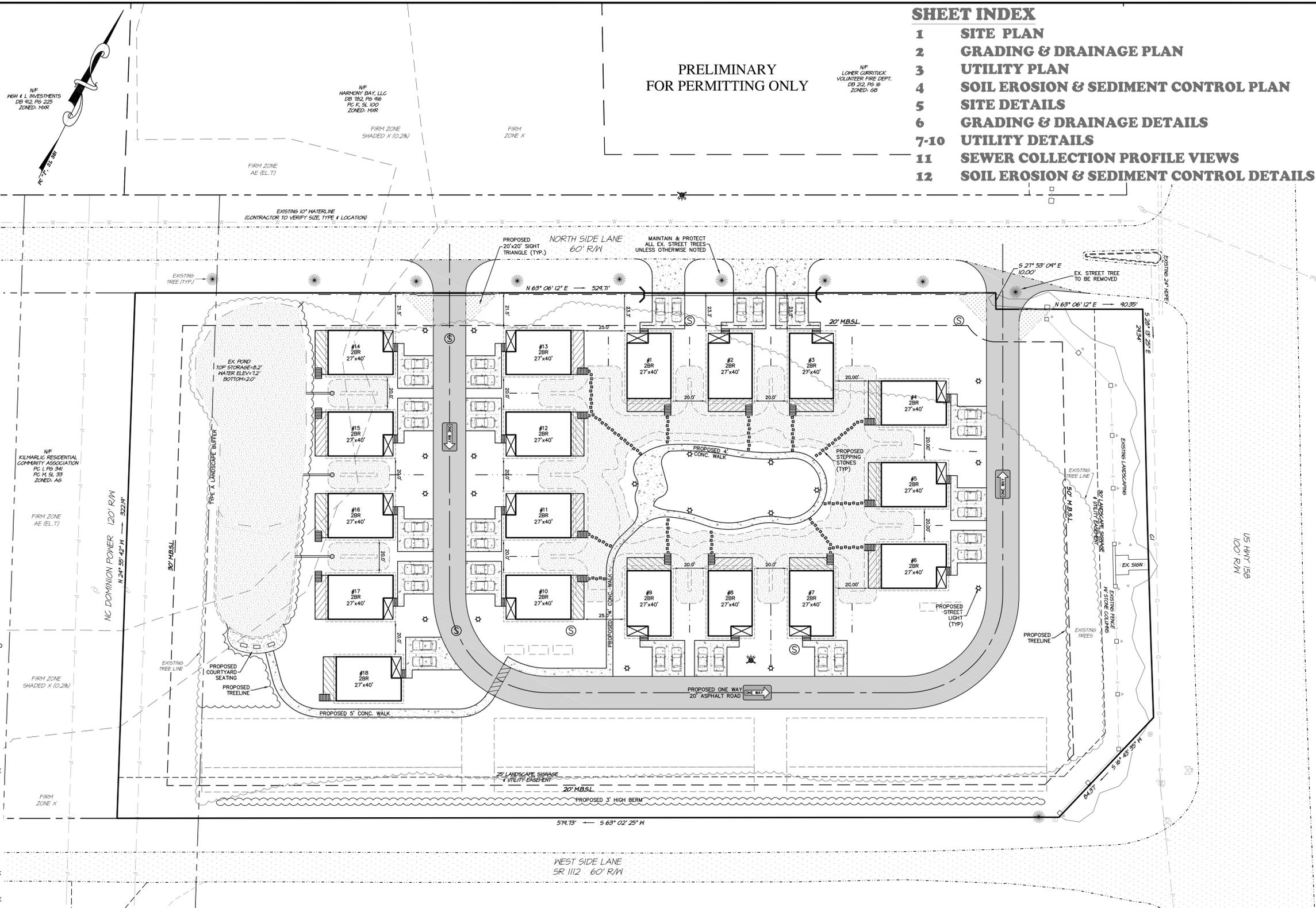
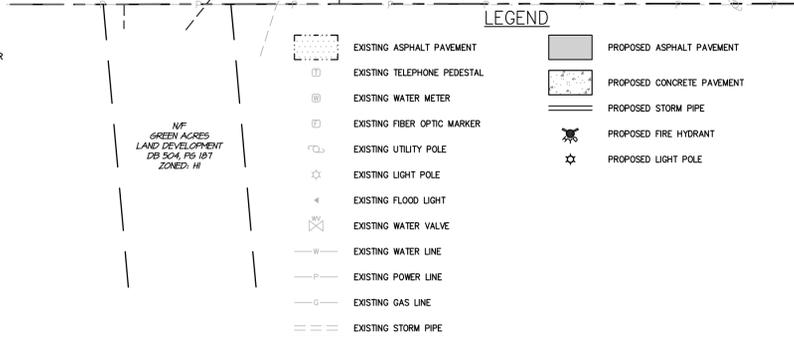


**VICINITY MAP (Harbinger)**  
1" = 1,500'

- NOTES:**
- OWNER: FORTUNE BAY COMMERCIAL LLC  
PO BOX 279  
HARBINGER, NC 27941
  - PID # 012400057F0000  
PIN # 9837-47-7924
  - RECORDED REFERENCE: DB 682, PG 500, PC "I", SL 342
  - SITE ZONING: MIXED RESIDENTIAL (MXR)
  - PROPOSED USE: 18 SINGLE FAMILY RESIDENTIAL UNITS (UTILIZING SUSTAINABLE DEVELOPMENT PRACTICE INCENTIVES TO RECEIVE A DENSITY BONUS)
  - TOTAL PROJECT AREA: 199,741.81 sq.ft. / 4.59 acres
  - TOTAL LOT COVERAGE = 54,393 sq.ft. (27.23%)  
BUILDINGS = 26,666 sq.ft.  
ROAD = 15,442 sq.ft.  
DRIVES = 6,558 sq.ft.  
TRAIL = 3,507 sq.ft.  
STONES = 220 sq.ft.
  - TOTAL OPEN SPACE PROVIDED = 145,349 sq.ft. (72.77%)  
TOTAL OPEN SPACE REQUIRED = 79,897 sq.ft. (40%)
  - SETBACKS: REQUIRED:  
FRONT 20'  
SIDE (EAST) 50'  
SIDE (WEST) 30'  
REAR 20'
  - BOUNDARY DATA SHOWN BASED ON PC "I", SL 342.
  - TOPOGRAPHIC DATA SHOWN ON THIS PLAN IS BASED ON SURVEY BY QUILBE & ASSOCIATES, P.C., DATED 04/10/14 & 04/23/14.
  - PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES BASED ON COMMUNITY ID NO. 370078; PANEL 9837; SUFFIX J. (MAP NUMBER 3709837000) EFFECTIVE DATE: 12/18/2005
  - NO U.S.A.C.O.E. SECTION 404 JURISDICTIONAL WETLANDS EXIST ON SITE.
  - ALL BUILDING ROOF RUNOFF SHALL BE DIRECTED TO THE STORMWATER COLLECTION SYSTEM.
  - ALL DIMENSIONS ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
  - ALL UTILITIES SERVING THIS SITE WILL BE PLACED UNDERGROUND.
  - EXISTING VEGETATION TO BE PRESERVED WHERE POSSIBLE.
  - ALL LANDSCAPING SHALL BE IN ACCORDANCE WITH CHAPTER 5.2 OF THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE.
  - ALL EXTERIOR LIGHTING SHALL BE IN ACCORDANCE WITH CHAPTER 5.4 OF THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE.
  - REMOVE TREES, GRASSES, SHRUBS AND OTHER VEGETATION, IMPROVEMENTS OR OBSTRUCTIONS INTERFERING WITH INSTALLATION OF NEW CONSTRUCTION UNLESS NOTED OTHERWISE.
  - PRIOR TO LAND DISTURBANCE, A STATE APPROVED SOIL EROSION AND SEDIMENTATION CONTROL PLAN IS REQUIRED.
  - THE ENTIRE SITE WILL BE IN FULL COMPLIANCE WITH ALL APPLICABLE NFPA REGULATIONS PERTAINING TO FIRE PROTECTION INCLUDING BUT NOT LIMITED TO NFPA 30 AS WELL AS VOLUME V OF THE NC STATE BUILDING CODE.
  - BUILDING CONSTRUCTION SHALL COMPLY WITH ALL ASPECTS OF THE NORTH CAROLINA BUILDING AND FIRE CODE.
  - THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL PROPERTY MONUMENTS DURING CONSTRUCTION. DISTURBED OR REMOVED PROPERTY MONUMENTS SHALL BE REPLACED BY A NORTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR.
  - ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE DRAWINGS, APPLICABLE CURRITUCK COUNTY CODES AND ORDINANCES, AND NCEED DIVISION OF ENERGY, MINERAL AND LAND RESOURCES REGULATIONS.
  - THE LOCATION, DIMENSIONS, AND ELEVATION OF EXISTING STRUCTURES, PIPING, AND UTILITIES SHOWN ARE BASED ON THE BEST AVAILABLE DATA AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DATA IN THE FIELD PRIOR TO CONSTRUCTION TO HIS/HER OWN SATISFACTION. THE CONTRACTOR SHALL PERFORM ANY TEST PIT WORK OR PROVIDE LOCATION SERVICES AS REQUIRED TO AVOID CONFLICTS WITH EXISTING UTILITIES. CONTACT NORTH CAROLINA ONE-CALL AT TELEPHONE NO. 1-800-632-4949, 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION TO HAVE UTILITIES MARKED.
  - THE CONTRACTOR SHALL PROVIDE SMOOTH TRANSITIONS FROM PROPOSED FEATURES TO EXISTING FEATURES AS NECESSARY.
  - THE CONTRACTOR SHALL SEAL THE EDGE OF EXISTING ASPHALT PAVEMENT WITH TACK COAT IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS WHERE NEW PAVEMENT JOINS EXISTING PAVEMENT.
  - ALL PAVEMENT JOINTS SHALL BE SAW-CUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
  - PROOF ROLL ALL NEW PAVED AREAS. NOTIFY OWNER AND ENGINEER OF ANY UNACCEPTABLE AREAS.
  - WATER IS PROVIDED VIA CURRITUCK COUNTY WATER SYSTEM. ALL WATER IMPROVEMENTS SHALL BE IN ACCORDANCE WITH CURRITUCK COUNTY STANDARD WATER SPECIFICATIONS AND DETAILS.
  - SEWER IS PROVIDED VIA ONSITE SUBSURFACE SEPTIC SYSTEM.



**VICINITY MAP (Green Acres)**  
1" = 1,500'



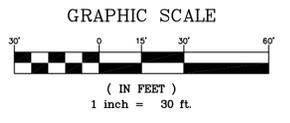
NF JAMES A. NELSON, JR.  
SARA E. NELSON, I  
STATHA M. NELSON  
CR 600, PG 64  
PC H. SL. 62  
ZONED: H1

NF DAVID G. NELSON, I  
DENISE D. NELSON  
DB 648, PG 331  
PC H. SL. 62  
ZONED: H1

NF BILLY G. ROUGHTON, I  
HELDRED H. ROUGHTON  
DB 348, PG 109  
PC E. SL. 221  
ZONED: H1

NF EMERALD CARATOKE  
HIGHWAY, LLC  
DB 1264, PG 308  
ZONED: 6B

**NOTE:**  
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**SHEET INDEX**

1	SITE PLAN
2	GRADING & DRAINAGE PLAN
3	UTILITY PLAN
4	SOIL EROSION & SEDIMENT CONTROL PLAN
5	SITE DETAILS
6	GRADING & DRAINAGE DETAILS
7-10	UTILITY DETAILS
11	SEWER COLLECTION PROFILE VIEWS
12	SOIL EROSION & SEDIMENT CONTROL DETAILS

**Quilbe & Associates, P.C.**  
ENGINEERING • CONSULTING • PLANNING  
ENVIRONMENTAL SCIENCES • SURVEYING  
SINCE 1959  
1000 W. HARRIS ST., SUITE 200  
RANDOLPH, NC 28134  
Phone: (252) 481-8144 Fax: (252) 481-8146  
E-Mail: admin@quilbe.com

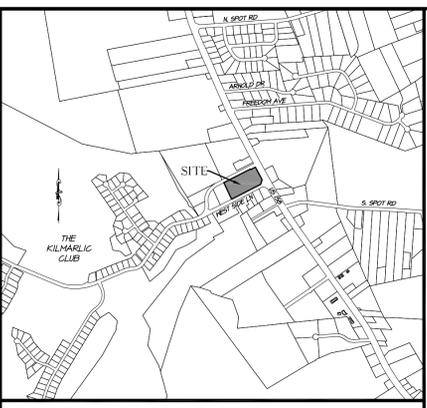
**REVISIONS**

NO.	DATE	REASON
1	3/21/16	RELEASED FOR WASTEWATER PERMITTING
2	4/9/16	REVISION PER ARJIS COMMENT

**COMMISSION NO. P14029**  
DESIGNED BY: MWS  
DRAWN BY: JMH  
CHECKED BY: MWS  
ISSUE DATE: 02/26/16

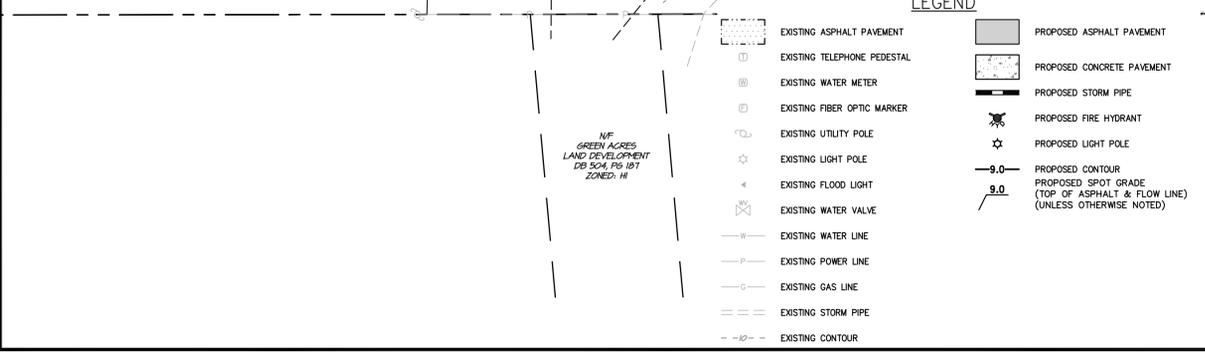
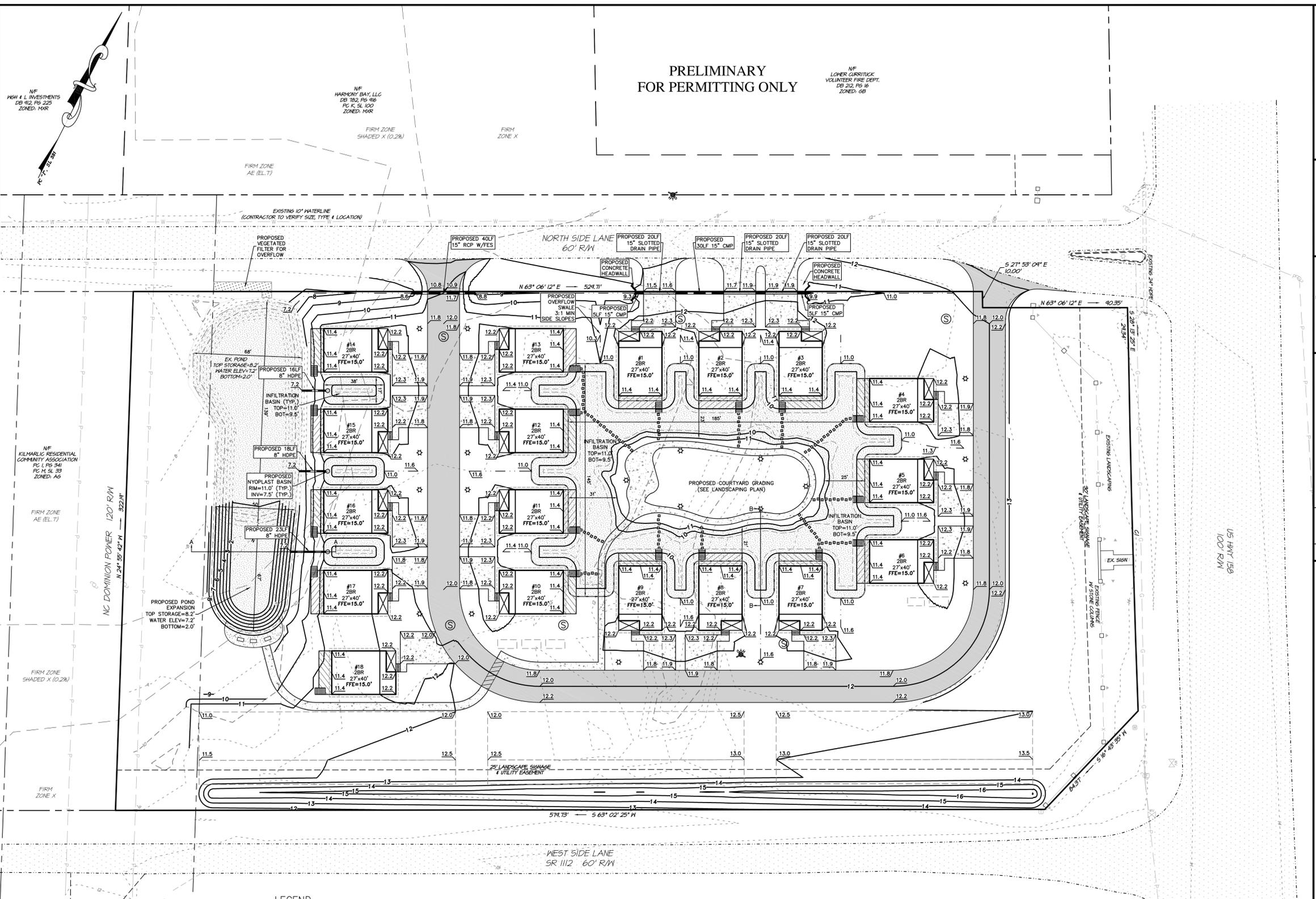
**SHEET NO. 1**  
OF 12 SHEETS

**COTTAGES AT KILMARLIC THE KILMARLIC CLUB**  
NORTH CAROLINA  
CURRITUCK COUNTY  
POPLAR BRANCH TOWNSHIP



**VICINITY MAP (Harbinger)**  
1" = 1,500'

- NOTES:**
- OWNER: FORTUNE BAY COMMERCIAL LLC  
PO BOX 279  
HARBINGER, NC 27941
  - PID # 012400057F0000  
PIN # 9837-47-7924
  - RECORDED REFERENCE: DB 682, PG 500, PC "I", SL 342
  - SITE ZONING: MIXED RESIDENTIAL (MXR)
  - PROPOSED USE: 18 SINGLE FAMILY RESIDENTIAL UNITS (UTILIZING SUSTAINABLE DEVELOPMENT PRACTICE INCENTIVES TO RECEIVE A DENSITY BONUS)
  - TOTAL PROJECT AREA: 199,741.81 sq. ft. / 4.59 acres  
TOTAL LOT COVERAGE = 54,393 sq. ft. (27.23%)  
BUILDINGS = 26,666 sq. ft.  
ROAD = 15,442 sq. ft.  
DRIVES = 6,559 sq. ft.  
TRAIL = 3,507 sq. ft.  
STONES = 220 sq. ft.
  - STORMWATER CALCULATIONS:  
STORAGE PROVIDED = 31,723 cf (7" STORAGE)  
STORAGE REQUIRED BY COUNTY = 54,393 sq. ft. x 4.75" = 21,531 cf  
STORAGE REQUIRED BY STATE = 54,393 sq. ft. x 1.5" = 6,799 cf
  - BOUNDARY DATA SHOWN BASED ON PC "I", SL 342.
  - TOPOGRAPHIC DATA SHOWN ON THIS PLAN IS BASED ON SURVEY BY QUILBE & ASSOCIATES, P.C. DATED 04/10/14 & 04/23/14.
  - PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES BASED ON COMMUNITY ID NO. 370078; PANEL 9837; SUFFIX J. (MAP NUMBER 3720983700J) EFFECTIVE DATE: 12/16/2005
  - ALL PROPOSED ELEVATIONS SHOWN ON THIS PLAN REFERENCE NAVD 1988.
  - CONTRACTOR SHALL PROVIDE SMOOTH TRANSITION BETWEEN SPOT ELEVATION GRADES AND MAINTAIN POSITIVE DRAINAGE.
  - BUILDING STORMWATER RUNOFF SHALL BE COLLECTED VIA ROOF GUTTERS & OR SWALES AND CONVEYED INTO THE STORMWATER INFILTRATION BASINS.
  - AREAS OF FILL SHALL BE EXCAVATED TO COMPACTED SUBGRADE AND BACKFILLED IN 6" LIFTS.
  - MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDINGS.



**NOTE:**  
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**GRAPHIC SCALE**  
1 inch = 30 ft.

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

**PRELIMINARY FOR PERMITTING ONLY**

NF LOWER CURRITUCK VOLUNTEER FIRE DEPT.  
DB 212, PG 16  
ZONED: 6B

**Quible & Associates, P.C.**  
ENGINEERING • CONSULTING • PLANNING  
ENVIRONMENTAL SCIENCES • SURVEYING  
Phone: (252) 491-8144  
Fax: (252) 491-8146  
E-Mail: admin@quible.com

**Professional Seal:** JAMES A. NELSON, P.E., No. 10000, State of North Carolina

**REVISIONS**

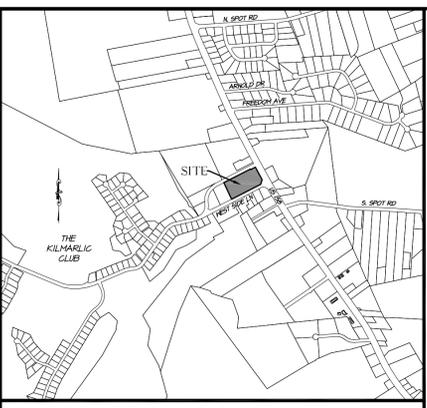
NO.	DATE	RELEASED FOR WASTEWATER PERMITTING	REVISION PER ARJIS COMMENT
1	3/21/16		
2	4/6/16		

**GRADING & DRAINAGE PLAN**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**

NORTH CAROLINA  
CURRITUCK COUNTY  
POPLAR BRANCH TOWNSHIP

COMMISSION NO. P14029  
DESIGNED BY: MWS  
DRAWN BY: JMH  
CHECKED BY: MWS  
ISSUE DATE: 02/26/16  
SHEET NO. 2 OF 12 SHEETS

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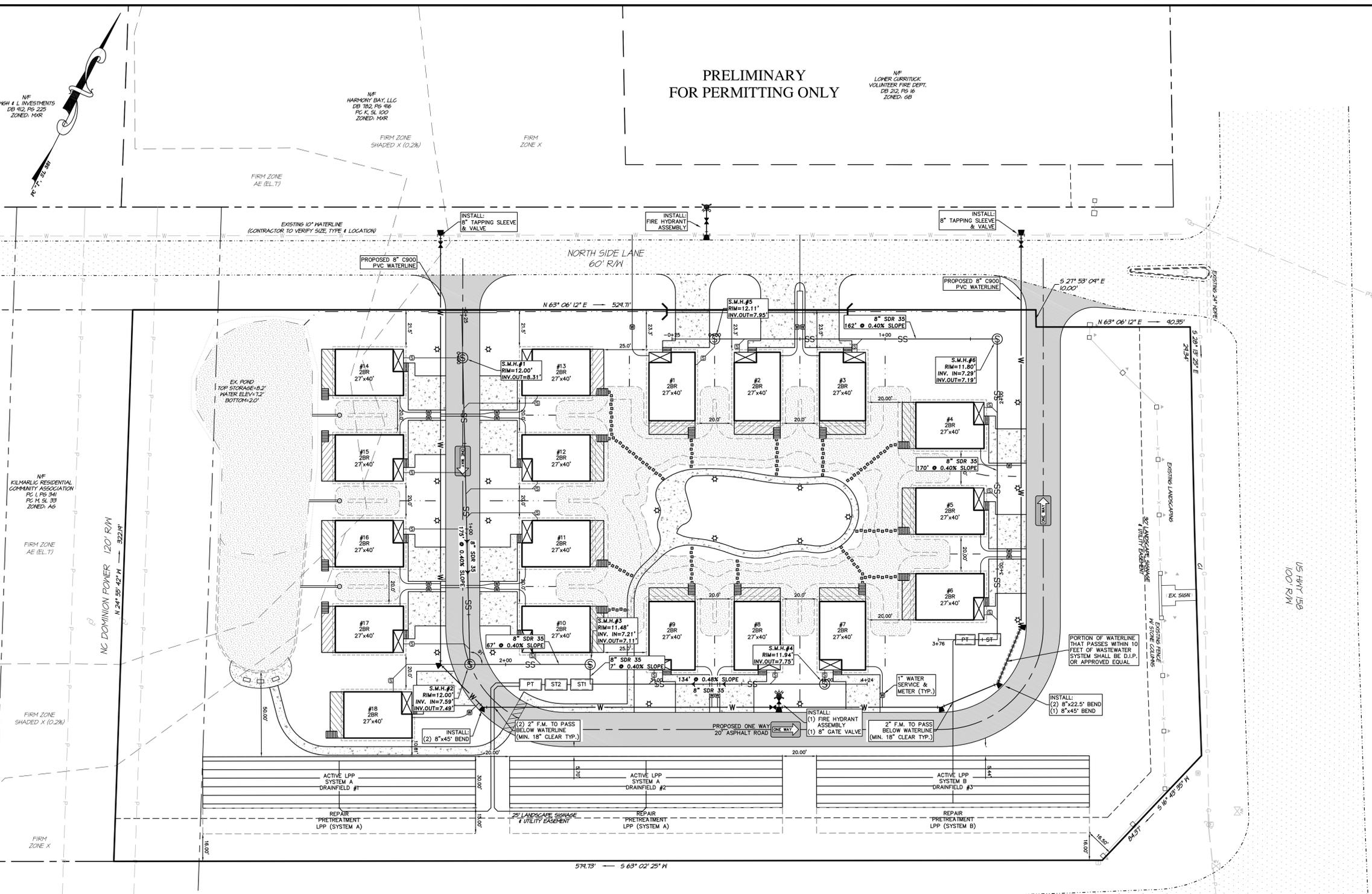


**VICINITY MAP (Harbinger)**  
1" = 1,500'

- NOTES:**
- OWNER: FORTUNE BAY COMMERCIAL LLC  
PO BOX 279  
HARBINGER, NC 27941
  - PID # 012400057F0000  
PIN # 9837-47-7924
  - RECORDED REFERENCE: DB 682, PG 500, PC "I", SL 342
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  - TOTAL PROJECT AREA: 199,741.81 sq.ft. / 4.59 acres
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  - ALL UTILITIES SERVING THIS SITE WILL BE PLACED UNDERGROUND.

**WASTEWATER SYSTEM NOTES:**

- CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UNDERGROUND UTILITIES IN AREAS OF WORK PRIOR TO ANY WORK. PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION IF UTILITIES ARE TO REMAIN IN PLACE.
- REMOVE TREES, GRASSES, SHRUBS AND OTHER VEGETATION, IMPROVEMENTS OR OBSTRUCTIONS INTERFERING WITH INSTALLATION OF NEW CONSTRUCTION UNLESS NOTED OTHERWISE.
- NEW WASTEWATER SYSTEM DESIGN PARAMETERS:  
LPP SYSTEM A:  
DESIGN FLOW = 120 GPD / BEDROOM x 12 BEDROOMS = 2,880 GPD (REPAIR TO UTILIZE TS2 PRETREATMENT WITH LPP DISPOSAL)  
LPP SYSTEM B:  
DESIGN FLOW = 120 GPD / BEDROOM x 6 BEDROOMS = 1,440 GPD (REPAIR TO UTILIZE TS2 PRETREATMENT WITH LPP DISPOSAL)  
\*LONG TERM APPLICATION RATE (LTAR): 0.3 GPD/SQ.FT. FOR A LPP SYSTEM AS SET BY ARHS.
- UNLESS OTHERWISE INDICATED ON THE PLAN, CONSTRUCTION OF SEWAGE COLLECTION, TREATMENT AND DISPOSAL SYSTEM IS TO CONFORM WITH SECTIONS 0300, 0300 AND 0400 WASTE NOT DISCHARGED TO SURFACE WATERS OF NORTH CAROLINA ADMINISTRATIVE CODE, TITLE 15A DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCE DIVISION OF WATER QUALITY.
- CONSTRUCTION OF SEWAGE COLLECTION SYSTEM, TREATMENT AND DISPOSAL SYSTEM IS TO CONFORM WITH ANY CONDITIONS IMPOSED UTILITIES, INC.
- MATERIAL USED FOR COLLECTION AND DISPOSAL SYSTEM SHALL CONFORM WITH SAME REQUIREMENTS AS #4 ABOVE.
- FILL MATERIAL SHALL HAVE SUCH SOIL TEXTURE TO BE CLASSIFIED AS SAND OR LOAMY SAND (SOIL GROUP I) UP TO THE TOP OF THE MITIGATION TRENCHES. THE FINAL SIX INCHES OF FILL USED TO COVER THE SYSTEM SHALL HAVE A FINER TEXTURE (SUCH AS GROUP II, III) FOR THE ESTABLISHMENT OF A VEGETATIVE COVER. THE FILL MATERIAL AND THE EXISTING SOIL SHALL BE MIXED TO A DEPTH OF SIX INCHES BELOW THE INTERFACE. HEAVY VEGETATIVE COVER OR ORGANIC LITTER SHALL BE REMOVED BEFORE THE FILL MATERIAL IS INCORPORATED.
- WELL POINTS AND PUMPS SHALL BE SUFFICIENT IN SIZE AND SPACING TO DRAW UNDERGROUND WATER TWO TO THREE FEET BELOW REQUIRED EXCAVATION FOR SEPTIC AND PUMP TANKS.
- GRADES SHALL BE ESTABLISHED TO DIVERT RUNOFF AWAY FROM TANKAGE.
- ALL SURFACE RUNOFF SHALL BE DIVERTED AROUND AND AWAY FROM THE DRAINFIELD AREA. FINISH GRADE SHALL BE LANDSCAPED TO PREVENT PONDING OF SURFACE WATER.
- CHANGES IN NEW PIPING OR STRUCTURES FROM THAT SHOWN ON THE DRAWINGS, IN ORDER TO AVOID CONFLICTS WITH EXISTING ELECTRICAL SYSTEMS, MECHANICAL SYSTEMS, EQUIPMENT, STRUCTURES, OR EXISTING PIPING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. WHETHER THE CONFLICTS ARE SHOWN OR ARE DISCOVERED IN THE FIELD. LIKEWISE, ALTERATIONS TO EXISTING ELECTRICAL SYSTEMS, MECHANICAL SYSTEMS, EQUIPMENT, OR EXISTING PIPING IN ORDER TO ACCOMMODATE NEW PIPING, STRUCTURES AND EQUIPMENT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE OWNER AND THE ENGINEER MUST APPROVE ALL SUCH CHANGES.
- MAINTAIN AND PROTECT ALL OVERHEAD AND UNDERGROUND ELECTRICAL, TELEPHONE, CABLE TV, WATER, AND ALL OTHER UTILITIES DURING ENTIRE CONSTRUCTION PERIOD. WATER SERVICE INTERRUPTIONS AND OTHER UTILITY OUTAGES WILL NOT BE ALLOWED.
- PROVIDE A MINIMUM OF 18 INCHES CLEARANCE BETWEEN PIPING AND FOOTINGS, STRUCTURES, AND OTHER PIPING UNLESS OTHERWISE INDICATED. A POSITIVE GRADE SHALL BE MAINTAINED FOR THE VERTICAL ALIGNMENT OF ALL WATER AND SEWER PIPING TO ELIMINATE THE FORMATION OF AIR POCKETS.
- HORIZONTAL DISTANCE IS INDICATED FOR ALL PROPOSED PIPE LENGTHS SHOWN ON THE DRAWINGS. DEFLECT PIPE JOINTS AS REQUIRED TO MAINTAIN WATERLINE AND SEWER ALIGNMENTS SHOWN. THE CONTRACTOR SHALL PROVIDE ALL PIPE FITTINGS AS REQUIRED FOR COMPLETE AND OPERABLE PIPE INSTALLATIONS.
- CONTRACTOR SHALL PROVIDE ALL CONNECTING PIPES AND TRANSITION PIECES REQUIRED TO MAKE FINAL PIPING CONNECTIONS.
- SURFACE DRAINAGE: COMPLETELY DRAIN CONSTRUCTION SITE DURING PERIODS OF CONSTRUCTION TO KEEP SOIL MATERIALS SUFFICIENTLY DRY. PROVIDE TEMPORARY DITCHES, SWALES, AND OTHER DRAINAGE FEATURES AND EQUIPMENT AS REQUIRED TO MAINTAIN DRY SOILS. WHEN UNSUITABLE WORKING CONDITIONS FOR EQUIPMENT OPERATION AND UNSUITABLE SOIL SUPPORT FOR SUBSEQUENT CONSTRUCTION FEATURES DEVELOP, REMOVE UNSUITABLE MATERIAL AND PROVIDE NEW SOIL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.
- SUBSURFACE DRAINAGE: CONSIDER SITE SURFACE AND SUBSURFACE CONDITIONS, AVAILABLE SOIL AND HYDROLOGICAL DATA. REMOVE WATER BY BENCHING, SUMP PUMPING, OR OTHER METHODS TO PREVENT SOFTENING OF SURFACES EXPOSED BY EXCAVATION. USE FILTERS ON Dewatering DEVICES TO PREVENT REMOVAL OF FINES FROM SOIL. PROVIDE EROSION CONTROL AT OUTLET OR PIPING TO PREVENT EROSION. OPERATE Dewatering SYSTEM CONTINUOUSLY UNTIL CONSTRUCTION WORK BELOW EXISTING WATER LEVELS IS COMPLETE.
- CONSTRUCT EXCAVATION SUPPORT SYSTEMS AS REQUIRED BY OSHA AND U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENT MANUAL EM 385-1-1, SECTION 25 AS A THROUGH E TO ADEQUATELY SUPPORT EXISTING SOIL AND ADJACENT STRUCTURES DURING EXCAVATION ACTIVITIES.



**LEGEND**

	EXISTING ASPHALT PAVEMENT		PROPOSED ASPHALT PAVEMENT
	EXISTING TELEPHONE PEDESTAL		PROPOSED CONCRETE PAVEMENT
	EXISTING WATER METER		PROPOSED STORM PIPE
	EXISTING FIBER OPTIC MARKER		PROPOSED FIRE HYDRANT
	EXISTING UTILITY POLE		PROPOSED LIGHT POLE
	EXISTING LIGHT POLE		PROPOSED FIRE HYDRANT
	EXISTING FLOOR LIGHT		PROPOSED BENDS & TEES
	EXISTING WATER VALVE		PROPOSED GATE VALVE
	EXISTING WATER LINE		PROPOSED WATERLINE
	EXISTING POWER LINE		PROPOSED SANITARY SEWER
	EXISTING GAS LINE		PROPOSED SEPTIC TANK
	EXISTING STORM PIPE		PROPOSED PUMP TANK
			PROPOSED CLEAN OUT

PRELIMINARY  
FOR PERMITTING ONLY

NF  
LOWER CURRITUCK  
VOLUNTEER FIRE DEPT.  
DB 212, PG 16  
ZONED: 6B

**Quilbe & Associates, P.C.**  
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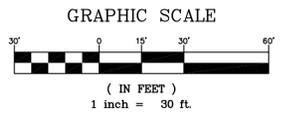
NO.	DATE	REVISIONS
1	3/21/16	RELEASED FOR WASTEWATER PERMITTING
2	4/9/16	REVISION PER ARHS COMMENT

**UTILITY PLAN**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**  
NORTH CAROLINA  
CURRITUCK COUNTY  
POPLAR BRANCH TOWNSHIP

COMMISSION NO.	P14029
DESIGNED BY	MWS
DRAWN BY	JMH
CHECKED BY	MWS
ISSUE DATE	02/26/16

SHEET NO.  
**3**  
OF 12 SHEETS

**NOTE:**  
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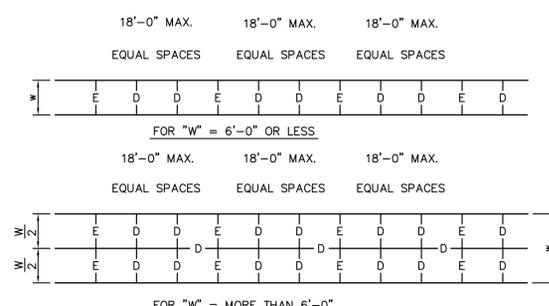
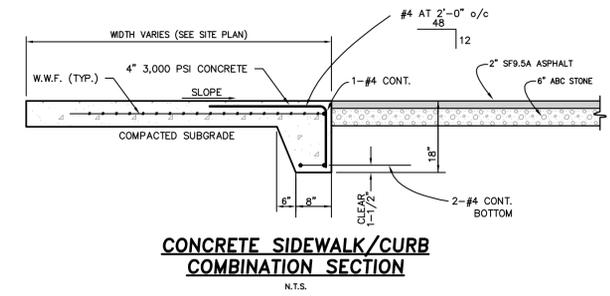
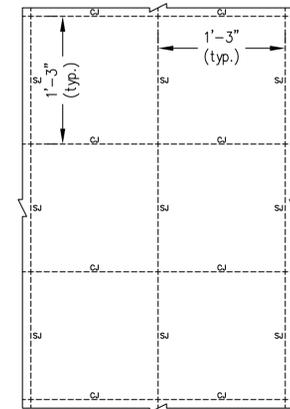
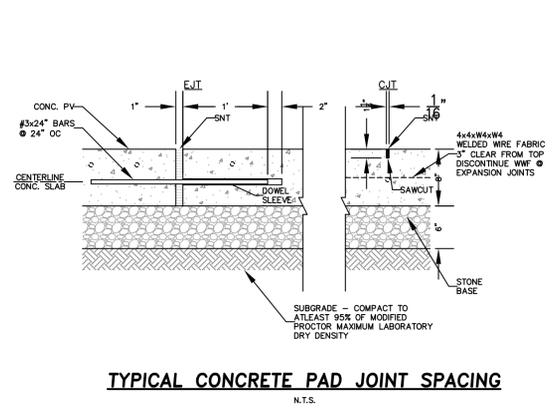
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PURPOSE WITHOUT THE WRITTEN  
CONSENT OF QUIBLE & ASSOCIATES,  
P.C. OTHERWISE NOTED.

NO.	DATE	REVISIONS
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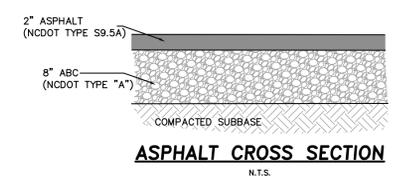
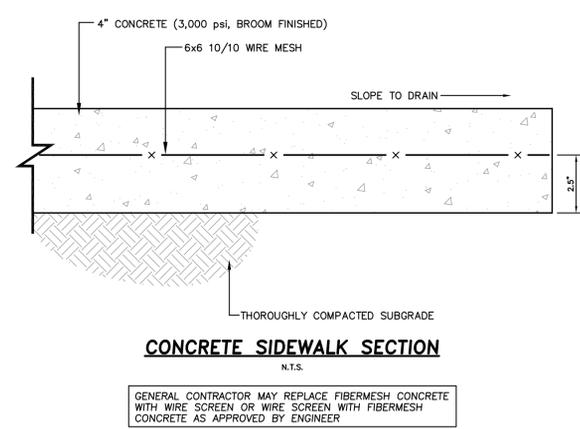
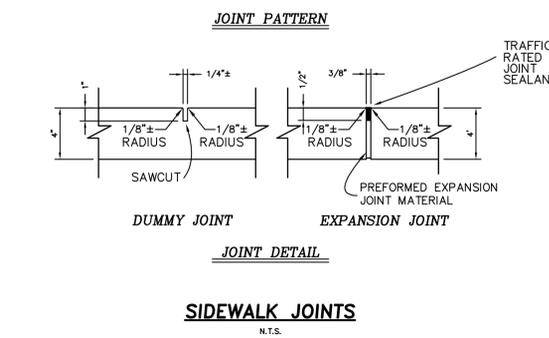
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CHECKED BY	MWS
ISSUE DATE	02/26/16

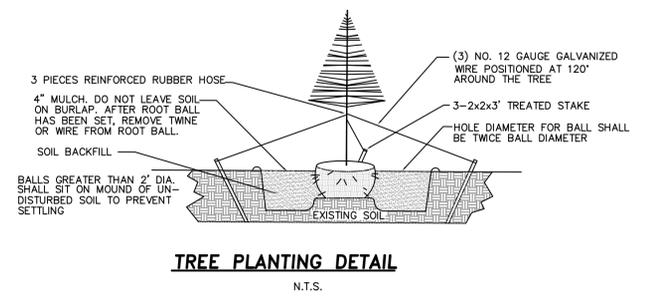
SHEET NO.  
**5**  
OF 12 SHEETS



**NOTES:**  
-EXCEPT WHERE SHOWN IN THE PLAN, ALL NEW CONC. WALKS SHALL HAVE JOINTS SPACED AS SHOWN IN THESE DETAILS.  
-AN EXPANSION JOINT SHALL BE USED TO SEPARATE THE NEW CONC. WALK FROM OTHER NEW OR EXISTING CONCRETE CONSTRUCTION.  
-SEE ALSO ARCHITECTURAL PLANS



**COMPACTION NOTES:**  
1. PROOF ROLL ALL NEW PAVED AREAS. NOTIFY OWNER AND ENGINEER OF ANY UNACCEPTABLE AREAS.  
2. COMPACT BACKFILL AND SUBGRADE TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557) ALL BACKFILL MATERIAL SHALL BE SELECT BACKFILL UNLESS OTHERWISE SPECIFIED BY THE ENGINEERS.  
3. SELECT FILL SHALL CONSIST OF SAND OR GRAVEL CONTAINING LESS THAN 20% BY WEIGHT OF FINES [SP, SM, SW, GP, GW] HAVING A LIQUID LIMIT LESS THAN 20 AND PLASTIC LIMIT LESS THAN 6, AND FREE OF RUBBLE, ORGANICS, CLAY, DEBRIS, AND OTHER UNSUITABLE MATERIAL.

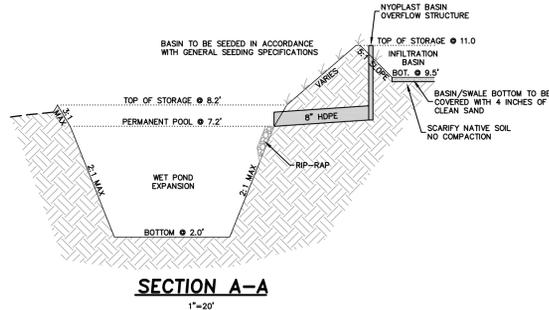
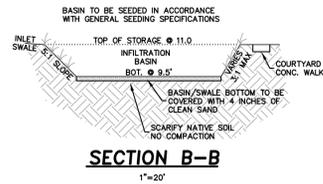




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UNLESS OTHERWISE NOTED.

- COMPACTION NOTES:**
1. PROOF ROLL ALL NEW PAVED AREAS. NOTIFY OWNER AND ENGINEER OF ANY UNACCEPTABLE AREAS.
  2. COMPACT BACKFILL AND SUBGRADE TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557) ALL BACKFILL MATERIAL SHALL BE SELECT BACKFILL UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
  3. SELECT FILL SHALL CONSIST OF SAND OR GRAVEL CONTAINING LESS THAN 20% BY WEIGHT OF FINES (SP, SM, SW, GP, GW) HAVING A LIQUID LIMIT LESS THAN 20 AND PLASTIC LIMIT LESS THAN 6, AND FREE OF RUBBLE, ORGANICS, CLAY, DEBRIS, AND OTHER UNSUITABLE MATERIAL.

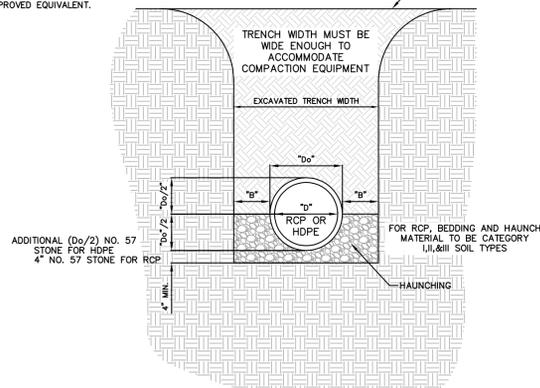
**COMPACTION NOTES**



- NOTES:**
1. ALL PIPE JOINTS SHALL BE WRAPPED WITH NCDOT TYPE II GEOTEXTILE OR APPROVED EQUIVALENT.
  2. PERFORATED HDPE PIPES SHALL BE SLEEVED WITH NCDOT TYPE II GEOTEXTILE OR APPROVED EQUIVALENT.

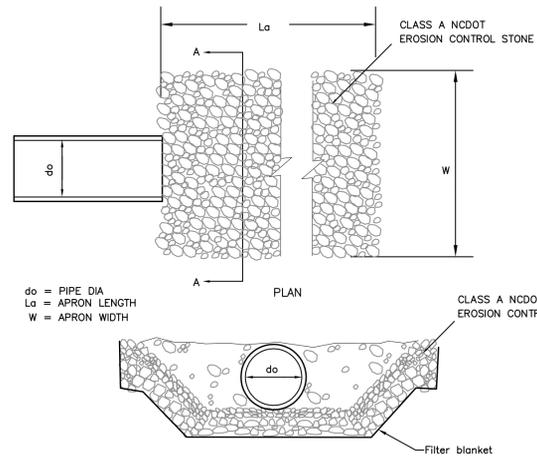
RCP PIPE DIA. "D"	"B"
2"-15"	8"
18"-24"	10"
30"-48"	18"

TRENCH SHALL BE BACKFILLED WITH CLEAN SAND AND TOPPED WITH TOP SOIL IF LOCATED IN PAVEMENT. PAVE PER PAVEMENT SPECIFICATIONS.



**STORM PIPE TRENCH SECTION**

N.T.S.

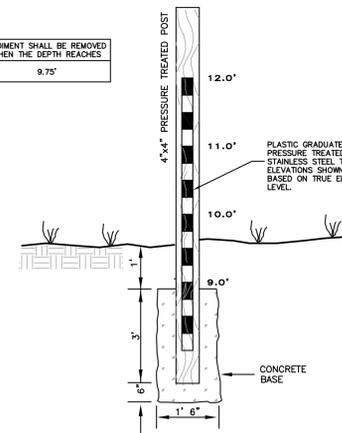


- NOTES:**
- SEE GRADING PLANS FOR DIMENSIONS
  - A filter blanket or filter fabric should be installed between the rip rap and soil foundation.

**RIP-RAP OUTLET DETAIL**

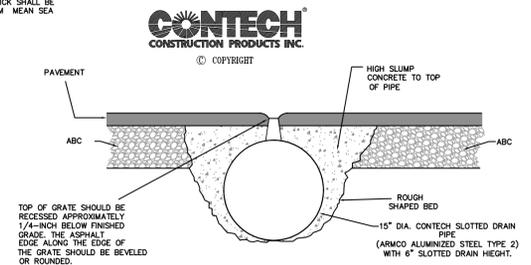
N.T.S.

INFILTRATION BASIN	BOTTOM ELEVATION	SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES
ALL BASINS	9.5'	9.75'



**DEPTH BENCHMARK**

N.T.S.



**CONTECH SLOTTED DRAIN DETAIL**

N.T.S.

**GRADING & DRAINAGE DETAILS**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**

NORTH CAROLINA  
CURRITUCK COUNTY  
POPLAR BRANCH TOWNSHIP

COMMISSION NO. **P14029**

DESIGNED BY **JMW**

DRAWN BY **JMH**

CHECKED BY **MWS**

ISSUE DATE **02/26/16**

SHEET NO.  
**6**  
OF 12 SHEETS

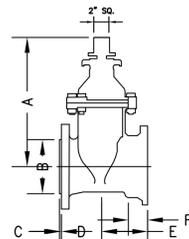
NOMINAL PIPE SIZE	SLEEVE O.D. RANGE (INCHES)	CATALOG NUMBER	BY	BRANCH SIZE	APPROX. WEIGHT
4"	4.40 - 4.80	SS1 - 4.40	X	3" FL.	28#
	5.10 - 5.30	SS1 - 5.30			30#
6"	6.80 - 7.20	SS1 - 6.80	X	4" FL.	38#
	7.50 - 7.90	SS1 - 7.50			40#
8"	8.90 - 9.30	SS1 - 8.90	X	5" FL.	48#
	9.00 - 9.40	SS1 - 9.40			50#
10"	10.70 - 11.10	SS1 - 10.70	X	6" FL.	58#
	11.70 - 12.10	SS1 - 12.10			60#
12"	12.70 - 13.10	SS1 - 12.70	X	8" FL.	68#
	13.10 - 13.50	SS1 - 13.50			70#
14"	15.20 - 15.60	SS1 - 15.20	X	10" FL.	78#
	16.30 - 16.70	SS1 - 16.70			80#
16"	17.10 - 17.50	SS1 - 17.10	X	12" FL.	88#
	18.20 - 18.60	SS1 - 18.60			90#
18"	18.90 - 19.30	SS1 - 18.90	X	14" FL.	98#
	21.00 - 21.40	SS1 - 21.40			100#
20"	21.40 - 21.80	SS1 - 21.40	X	16" FL.	108#
	22.50 - 22.90	SS1 - 22.90			110#
24"	23.70 - 24.10	SS1 - 23.70	X	20" FL.	128#
	24.20 - 24.60	SS1 - 24.60			130#

**TYPICAL TAPPING SLEEVE DETAIL**

ROMAC INDUSTRIES, INC. "SS1" STAINLESS STEEL TAPPING SLEEVE

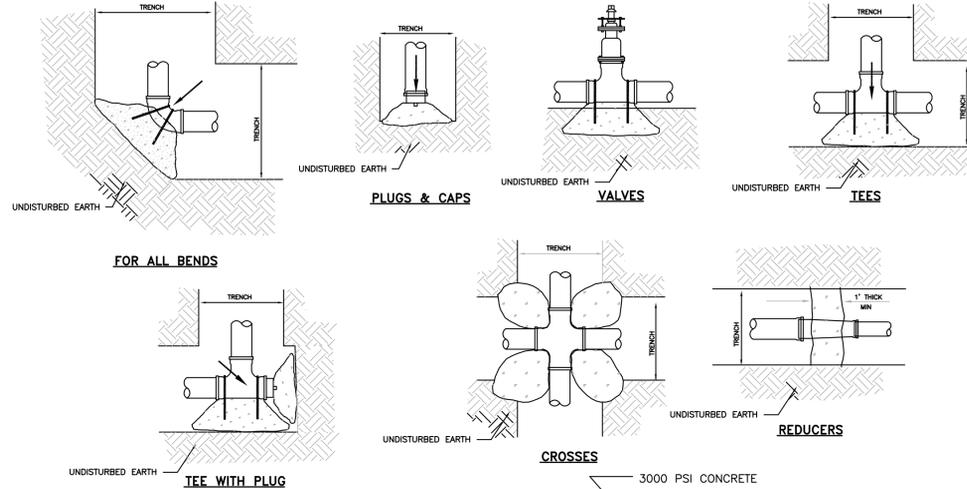
DIMENSION	VALVE SIZE				
	4"	6"	8"	10"	12"
A	13-5/8	16-3/4	20-5/16	24-1/8	27-1/2
B + 0.000 - 0.031	4.854	6.854	8.854	10.854	12.854
C ± 0.016	.188	.250	.250	.250	.250
D (FLANGED END)	4-1/2	5-1/4	5-3/4	6-1/2	7
E (MJ END)	5-5/8	6	6-7/8	7-3/8	8-5/16
F	2-1/2	2-1/2	2-1/2	2-1/2	2-1/2
NO. OF TURNS TO OPEN	13	19	26	32	38
MAX. CUTTER DIAMETER	3-3/4	5-3/4	7-3/4	9-3/4	11-3/4

- NOTES:
- DO NOT EXCEED THE RECOMMENDED TAPPING MACHINE CUTTER DIAMETER LISTED IN THE TABLE. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE SEALING SURFACES OF THE VALVE.
  - VALVE MEETS OR EXCEEDS APPLICABLE REQUIREMENTS OF ANSI/AWWA C509 WITH WALL THICKNESS WHICH EXCEEDS THE MINIMUM REQUIREMENTS OF ANSI/AWWA C153/A21.53.
  - UL LISTED FM APPROVED. VALVE MUST BE ORDERED IN CONFIGURATIONS WHICH ARE UL LISTED AND FM APPROVED AND HAVE PERMANENT UL/FM MARKINGS.
  - 250 PSI RATED WORKING PRESSURE.
  - FUSION BONDED EPOXY COATING MEETS OR EXCEEDS REQUIREMENTS OF AWWA C550.
  - MECHANICAL JOINT ENDS ARE IN ACCORDANCE WITH ANSI/AWWA C111/A21.11.
  - BOLT PATTERNS OF FLANGED ENDS ARE IN ACCORDANCE WITH ANSI/AWWA C110/A21.10 (ANSI B16.1, CLASS 125).
  - RAISED PILOT DIMENSIONS OF FLANGED ENDS ON TAPPING VALVES ARE IN ACCORDANCE WITH MSS SP-60.

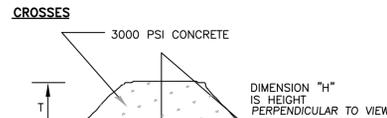


**TYPICAL TAPPING VALVE DETAIL**

AMERICAN FLOW CONTROL SERIES 2500 RESILIENT WEDGE VALVE



**FOR ALL BENDS**



**TYPICAL THRUST BLOCK**

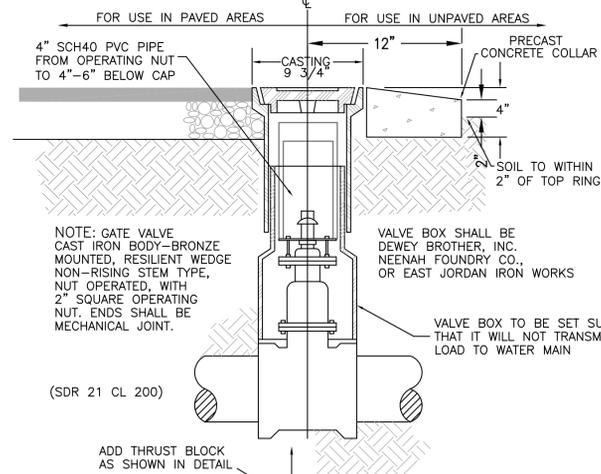
**ANCHOR ROD SIZES**

PIPE SIZE	ROD SIZE
4" THRU 8"	#4

**CONCRETE THRUST BLOCK**

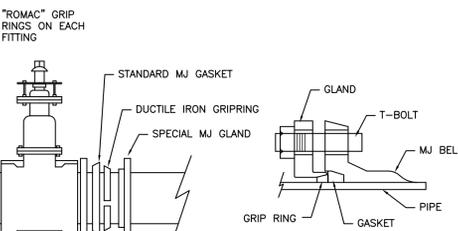
PIPE SIZE	FITTING	L (FT.)	H (FT.)	T (FT.)
2 - 3 - 4	TEE OR BLOCK	2.0	1.0	1.0
2 - 3 - 4	90	2.0	1.5	1.0
2 - 3 - 4	45	1.5	1.0	1.0
2 - 3 - 4	22 1/2	1.0	1.0	1.0
6	TEE OR BLOCK	2.0	2.0	1.0
6	90	3.0	2.0	1.5
6	45	2.0	1.5	1.0
6	22 1/2	1.5	1.0	1.0

NOTE: THIS TABLE BASED ON WATER PRESSURE 150 PSI SOIL BRG. 1500 #/SQ. FT. TO 2000 #/SQ. FT.



**TYPICAL VALVE DETAIL**

GATE VALVES SHALL COMPLY IN ALL RESPECTS WITH AWWA STANDARD C-500, LATEST REVISION



**TYPICAL GRIP RING DETAIL**

ROMAC INDUSTRIES, INC. GRIP RING PIPE RESTRAINER FOR D.I., C-900, AND IPS SIZE PVC

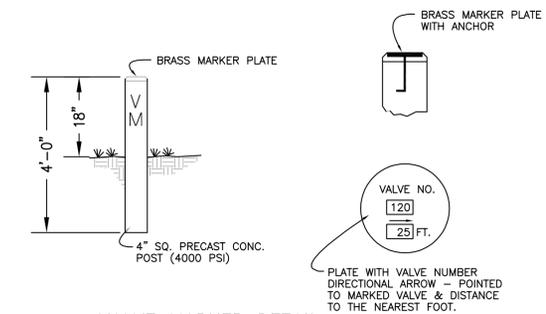
**DUCTILE IRON AND C-900**

ACCESSORY PACK (GLAND, GRIPRING, GASKET, BOLTS, AND NUTS)				GLAND AND GRIPRING ONLY			
NOM. PIPE SIZE	CATALOG NUMBER	BOLTS	WEIGHT	NOM. PIPE SIZE	CATALOG NUMBER	WEIGHT	
4"	4" GRAP-DI	4: 3/4"x3 1/2"	8#	4"	4" GR-DI	4#	
6"	6" GRAP-DI	6: 3/4"x4"	11#	6"	6" GR-DI	6#	
8"	8" GRAP-DI	6: 3/4"x4"	14#	8"	8" GR-DI	9#	
10"	10" GRAP-DI	8: 3/4"x4"	18#	10"	10" GR-DI	12#	
12"	12" GRAP-DI	8: 3/4"x4"	20#	12"	12" GR-DI	14#	

**PVC-IRON PIPE SIZE (IPS)**

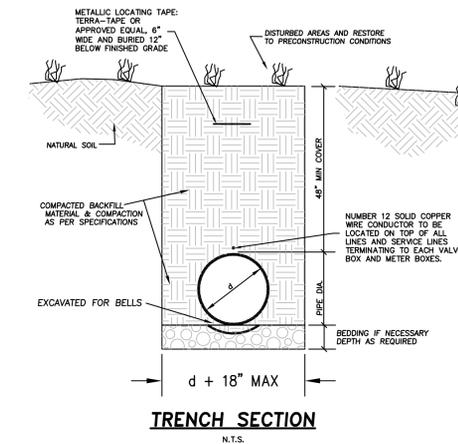
ACCESSORY PACK (GLAND, RING, GASKET, BOLTS, AND NUTS)				GLAND AND GRIPRING ONLY			
NOM. PIPE SIZE	CATALOG NUMBER	BOLTS	WEIGHT	NOM. PIPE SIZE	CATALOG NUMBER	WEIGHT	
4"	4" GRAP-DI	4: 3/4"x3 1/2"	8#	4"	4" GR-DI	4#	
6"	6" GRAP-DI	6: 3/4"x4"	11#	6"	6" GR-DI	6#	
8"	8" GRAP-DI	6: 3/4"x4"	14#	8"	8" GR-DI	8#	
10"	10" GRAP-DI	8: 3/4"x4"	18#	10"	10" GR-DI	11#	
12"	12" GRAP-DI	8: 3/4"x4"	20#	12"	12" GR-DI	13#	

**PRELIMINARY FOR PERMITTING ONLY**



**VALVE MARKER DETAIL**

N.T.S. COORDINATE VALVE NUMBERS AND MARKER POST LOCATIONS WITH WATER DEPARTMENT.



**TRENCH SECTION**

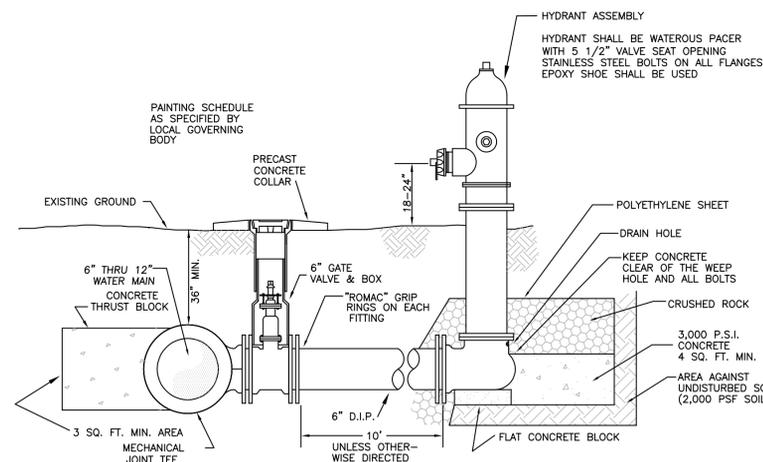
N.T.S.

**ANCHORAGE OF VALVES**

WORKING PRESSURE LB. PER SQ. INCH	SIZE OF VALVE REQUIRING ANCHORAGE
50 - 100	12 INCH AND UP
101 - 150	8 INCH AND UP
151 - 200	ALL SIZES

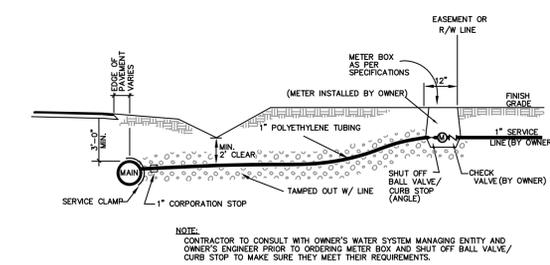
**MINIMUM COVER FOR GATE VALVES**

SIZE VALVE	MINIMUM COVERS
6"	36"
8"	38"
10"	43"
12"	46"



**TYPICAL FIRE HYDRANT ASSEMBLY**

FIRE HYDRANT SHALL COMPLY IN ALL RESPECTS WITH AWWA STANDARD C-502, LATEST REVISION



**STANDARD 1" SERVICE LINE AND METER BOX INSTALLATION**

N.T.S.

**Quible & Associates, P.C.**  
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 ENVIRONMENTAL SCIENCES • SURVEYING  
 SINCE 1959  
 No. License: C-0028 27149  
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 Phone: (252) 491-8147 Fax: (252) 491-8146  
 E-Mail: administrator@quible.com

**AMERICAN SOCIETY OF CIVIL ENGINEERS**  
 PROFESSIONAL ENGINEERING CERTIFICATION  
 MICHAEL STUBBS

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**REVISIONS**

NO.	DATE	REASON
1	3/21/16	RELEASED FOR WASTEWATER PERMITTING
2	4/6/16	REVISION PER ARJIS COMMENT

**UTILITY DETAILS**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**  
 NORTH CAROLINA  
 CURRITUCK COUNTY  
 POPLAR BRANCH TOWNSHIP

COMMISSION NO. **P14029**  
 DESIGNED BY **MWS**  
 DRAWN BY **JMH**  
 CHECKED BY **MWS**  
 ISSUE DATE **02/26/16**

SHEET NO. **7**  
 OF 12 SHEETS

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INC. LICENSE # C-0028 87149  
P.O. BOX 491 • 214 W. MAIN ST. • WYOMING  
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E-MAIL: administrator@quible.com

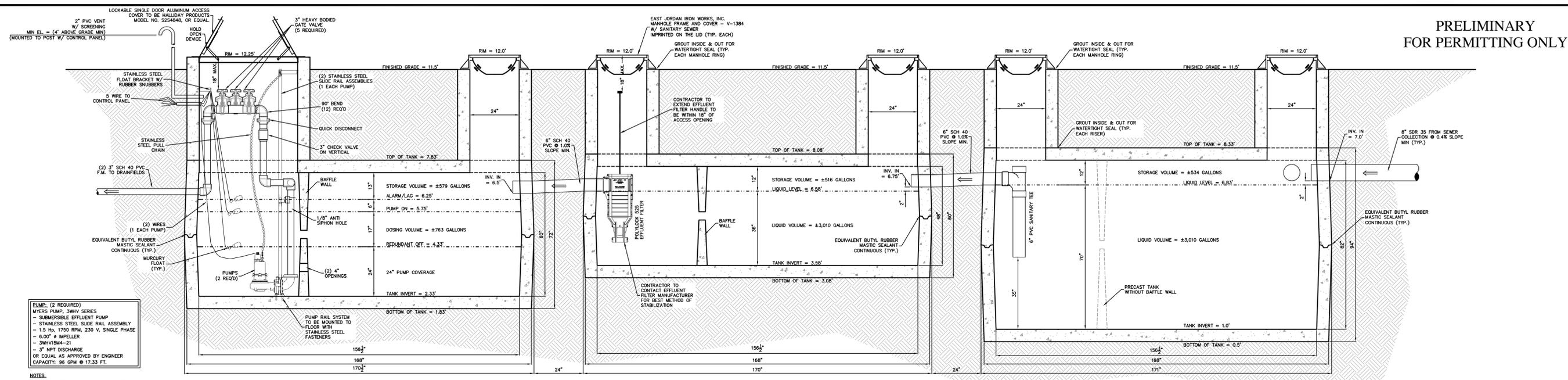


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NO.	DATE	REVISIONS
1	3/21/16	RELEASED FOR WASTEWATER PERMITTING
2	4/9/16	REVISION PER ARJIS COMMENT

**UTILITY DETAILS - SYSTEM "A"**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**  
NORTH CAROLINA  
CURRITUCK COUNTY  
POPLAR BRANCH TOWNSHIP

COMMISSION NO. **P14029**  
DESIGNED BY **MWS**  
DRAWN BY **JMH**  
CHECKED BY **MWS**  
ISSUE DATE **02/26/16**  
SHEET NO. **8**  
OF 12 SHEETS



**SECTION  
2,588 GAL. PUMP TANK**  
N.T.S.  
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. PT-410 - 2,588 GAL PUMP TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH

**SECTION  
1,528 GAL. SEPTIC TANK #2**  
N.T.S.  
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. STB 449 - 1,528 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
43 GALLONS PER INCH

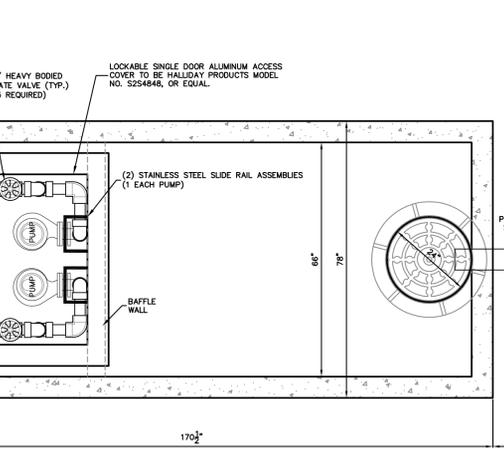
**SECTION  
3,000 GAL. SEPTIC TANK #1**  
N.T.S.  
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. STB 451 - 3,010 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH

- PUMP: (2 REQUIRED)**  
MYERS PUMP, 3MVA SERIES  
- SUBMERSIBLE EFFLUENT PUMP  
- STAINLESS STEEL SLIDE RAIL ASSEMBLY  
- 1.5 Hp, 1750 RPM, 230 V, SINGLE PHASE  
- 6.00" IMPELLER  
- 3WY15M4-23  
- 3" NPT DISCHARGE  
OR EQUAL AS APPROVED BY ENGINEER  
CAPACITY: 96 GPM @ 17.33 FT.

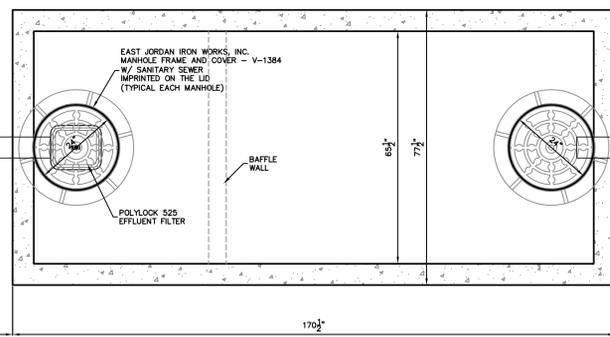
- NOTES:**  
1. SEWER CONTRACTOR TO PLUMB DISCHARGE PIPING IN SUCH A MANNER THAT ALLOWS EASY ACCESS TO GATE VALVE FOR FLOW ADJUSTMENT AND TO UNION FOR PUMP REMOVAL.  
2. CONTRACTOR TO STABILIZE PUMP DISCHARGE PIPING SO NO EXCESSIVE VIBRATION OCCURS DURING OPERATION.  
3. PULL CHAIN TO BE STAINLESS STEEL OR NYLON ROPE. PULL CHAIN TO BE ATTACHED TO HATCH COVER OR CONCRETE RISERS WITHIN EASY ACCESS OF TOP OF HATCH.  
4. ALL PIPE OPENINGS SHALL BE GROUDED FOR WATER-TIGHT SEALS.  
5. ALL ELECTRICAL CONDUIT OPENINGS SHALL BE WATER-TIGHT AND GASTIGHT.  
6. ALL PIPE TO BE SCH 40 PVC UNLESS OTHERWISE SPECIFIED.  
7. THIS SYSTEM LIES ADJACENT TO CLASS "50" WATERS AND THEREFORE REQUIRES 12 HOURS OF STORAGE.

UNDER NORMAL CONDITIONS WITH LIQUID LEVEL IN SEPTIC TANKS AT OUTLET TEE ELEVATION, TANKS SHOULD NOT FLOAT. SEPTIC SYSTEM MANAGING ENTITY AND SEPTAGE PUMP & HAULER SHALL TAKE PRECAUTIONS AGAINST SEPTIC TANK FLOATING WHEN BEING PUMPED OUT.

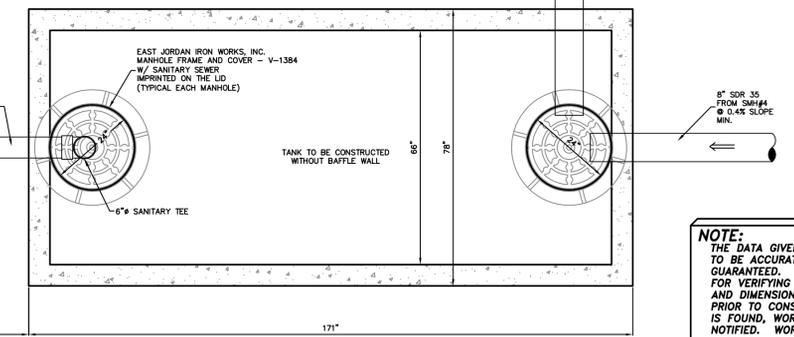
DUPLEX CONTROL PANEL  
(ACTUAL LOCATION TO BE SPECIFIED BY OWNER AND APPROVED BY ARJIS)



**PLAN  
2,588 GAL. SEPTIC TANK**  
N.T.S.  
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. PT-410 - 2,588 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH

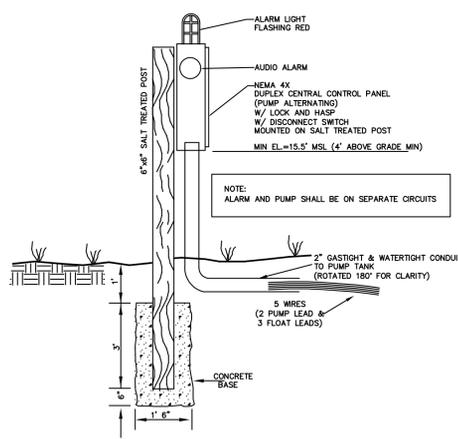


**PLAN  
1,528 GAL. SEPTIC TANK**  
N.T.S.  
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. STB 449 - 1,528 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
43 GALLONS PER INCH

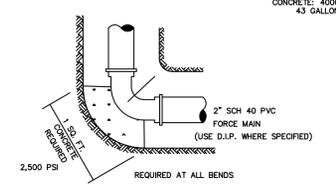


**PLAN  
3,000 GAL. SEPTIC TANK**  
N.T.S.  
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. STB 451 - 3,010 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
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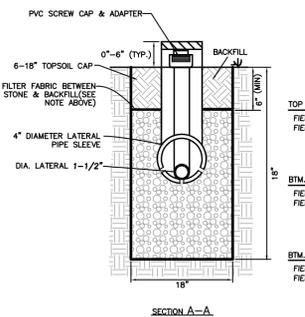
**NOTE:**  
THE DATA GIVEN ON THESE PLANS IS BELIEVED TO BE ACCURATE, BUT THE ACCURACY IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL LEVELS, LOCATIONS, TYPES, AND DIMENSIONS OF THE EXISTING UTILITIES PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND, WORK SHALL CEASE AND THE ENGINEER NOTIFIED. WORK MAY CONTINUE UPON ENGINEER'S NOTICE TO PROCEED.



**SEWER CLEAN-OUT**  
N.T.S.

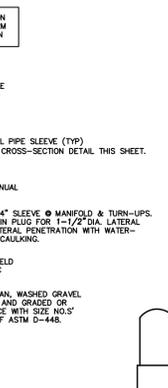


**FORCE MAIN  
THRUST BLOCKS @ BENDS**  
N.T.S.



**LATERAL TURN-UP & TRENCH X-SECTION**  
N.T.S.

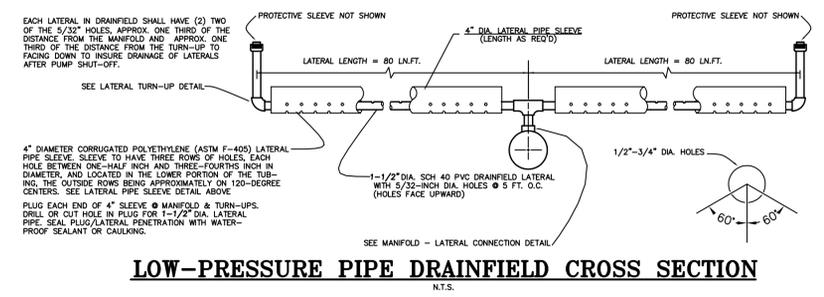
- NOTES:**  
1. ACTIVE DRAINFIELD AREA SHALL BE GRADED SO THAT STORMWATER RUNOFF DOES NOT POOL ON DRAINFIELD AREA.  
2. VEGETATE DRAINFIELD AND REPAIR AREAS AS PER SEEDING SPECIFICATION SHOWN ON SITE PLAN.  
3. FILTER FABRIC SHALL BE TREVIRA SPUNBOND TYPE 1112 ENGINEERING FABRIC OR EQUAL AS APPROVED BY ENGINEER.  
4. ALL TRENCHES, LATERALS, AND MANFOLDS SHALL BE INSTALLED LEVEL.



**MANIFOLD-LATERAL CONNECTION**  
N.T.S.

**CONTROL PANEL MOUNTING**  
N.T.S.

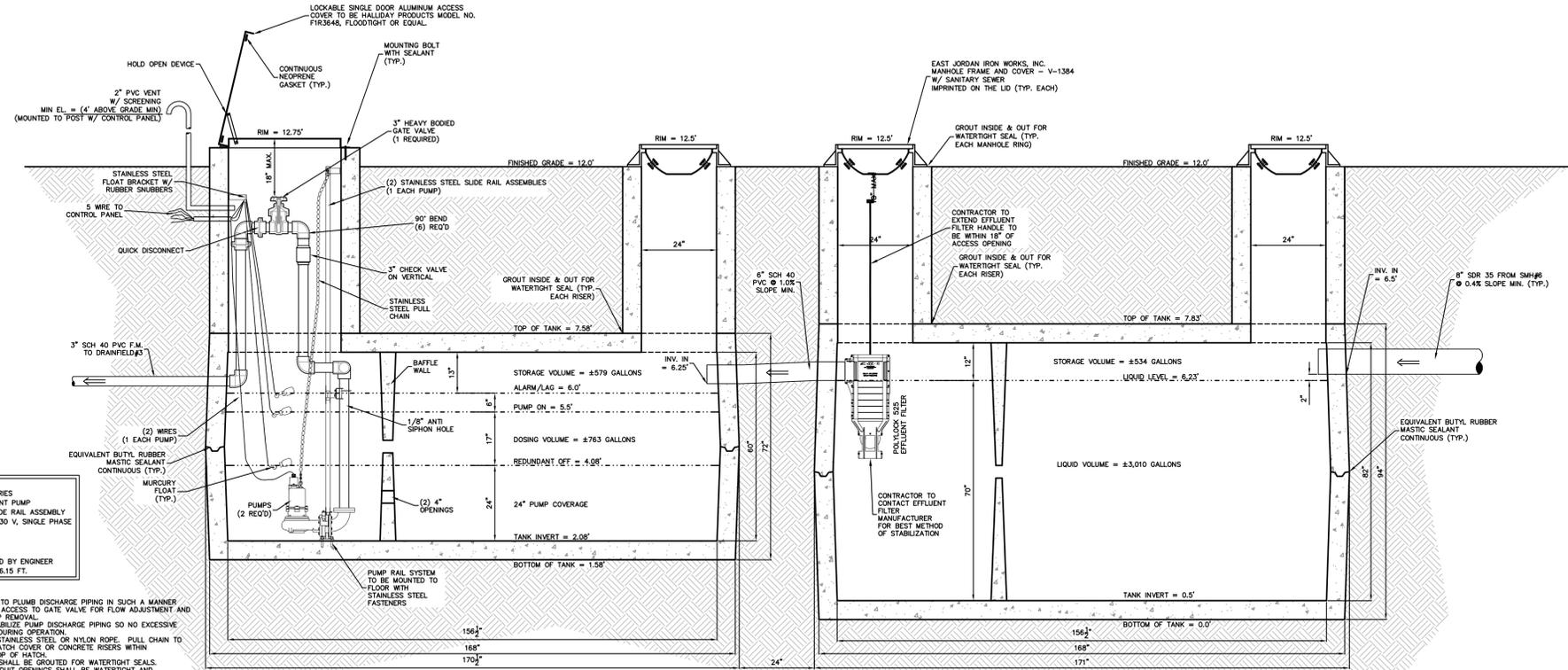
CONTRACTOR TO VERIFY PANEL LOCATION WITH OWNER AND ORDER PUMP AND FLOAT LEADS WITH SUFFICIENT LENGTH TO REACH FROM PANEL TO PUMP TANK.



**LOW-PRESSURE PIPE DRAINFIELD CROSS SECTION**  
N.T.S.



Know what's below.  
Call before you dig.



- EQUIP. (1 REQUIRED)**
- MYERS PUMP, 3/4HP SERIES
  - SUBMERSIBLE EFFLUENT PUMP
  - STAINLESS STEEL SLIDE RAIL ASSEMBLY - 1.5 HP, 1750 RPM, 230 V, SINGLE PHASE - 6.00" IMPELLER
  - 3HPV15M4-21
  - 3" NPT DISCHARGE
- OR EQUAL AS APPROVED BY ENGINEER  
CAPACITY: 96 GPM @ 16.15 FT.

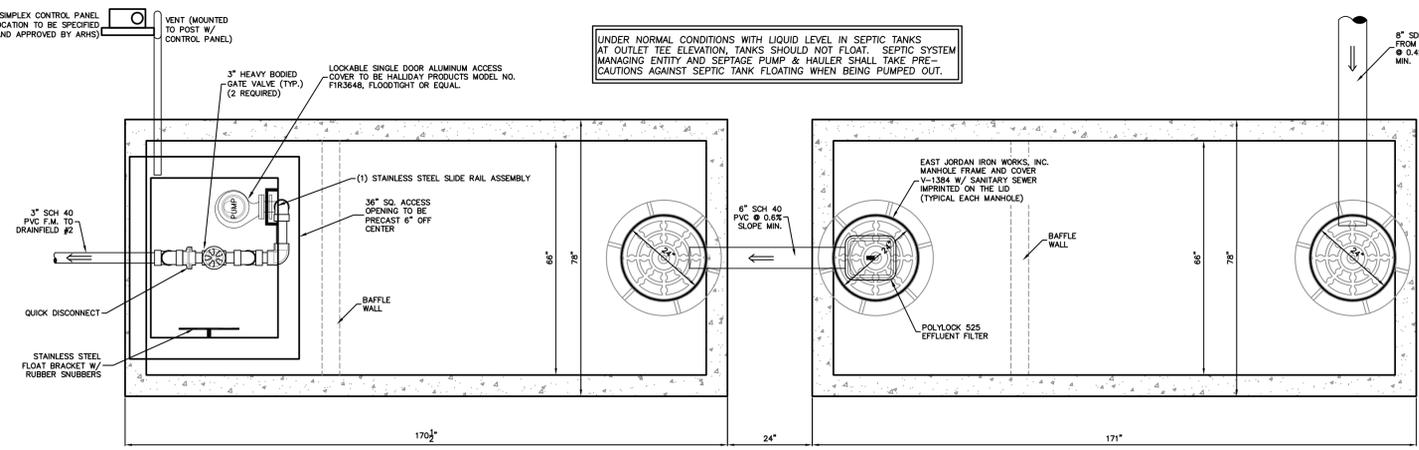
- NOTES:**
- SEWER CONTRACTOR TO PLUMB DISCHARGE PIPING IN SUCH A MANNER THAT ALLOWS EASY ACCESS TO GATE VALVE FOR FLOW ADJUSTMENT AND TO UNION FOR PUMP REMOVAL.
  - CONTRACTOR TO STABILIZE PUMP DISCHARGE PIPING SO NO EXCESSIVE VIBRATION OCCURS DURING OPERATION.
  - PULL CHAIN TO BE STAINLESS STEEL OR NYLON ROPE. PULL CHAIN TO BE ATTACHED TO HATCH COVER OR CONCRETE RISERS WITHIN EASY ACCESS OF TOP OF HATCH.
  - ALL PIPE OPENINGS SHALL BE GROUTED FOR WATER-TIGHT SEALS.
  - ALL ELECTRICAL CONDUIT OPENINGS SHALL BE WATER-TIGHT AND GASTIGHT.
  - ALL PIPE TO BE SCH 40 PVC UNLESS OTHERWISE SPECIFIED.
  - THIS SYSTEM LIES ADJACENT TO CLASS "SC" WATERS AND THEREFORE REQUIRES 12 HOURS OF STORAGE.

**SECTION 2.588 GAL. PUMP TANK**  
N.T.S.

GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. PT-410 - 2,588 GAL PUMP TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH

**SECTION 3.000 GAL. SEPTIC TANK**  
N.T.S.

GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. STB 451 - 3,010 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH

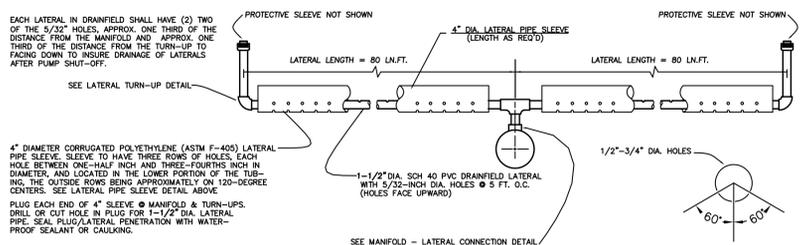


**PLAN 2.588 GAL. SEPTIC TANK**  
N.T.S.

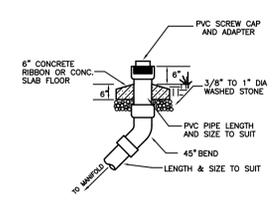
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. PT-410 - 2,588 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH

**PLAN 3.000 GAL. SEPTIC TANK**  
N.T.S.

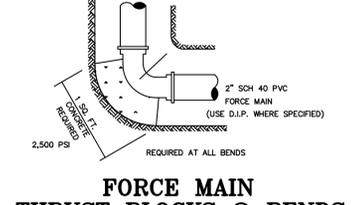
GREEN ACRES LAND DEVELOPMENT INC. PRECAST, INC. STB 451 - 3,010 GAL SEPTIC TANK  
OR EQUAL AS APPROVED BY ENGINEER  
CONCRETE: 4000 PSI AT 28 DAYS  
44.5 GALLONS PER INCH



**LOW-PRESSURE PIPE DRAINFIELD CROSS SECTION**  
N.T.S.

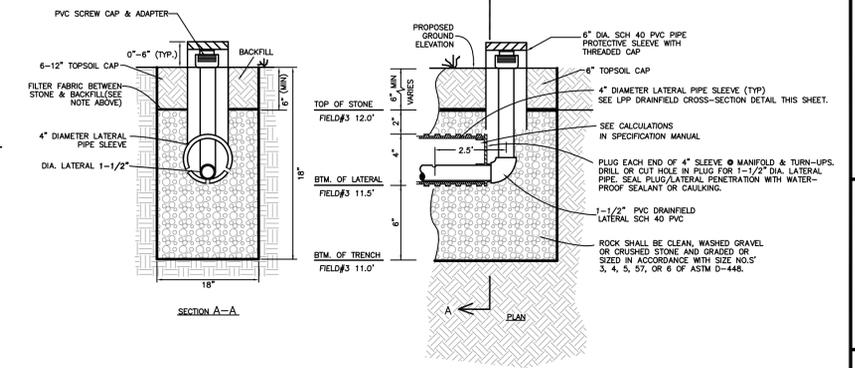


**SEWER CLEAN-OUT**  
N.T.S.



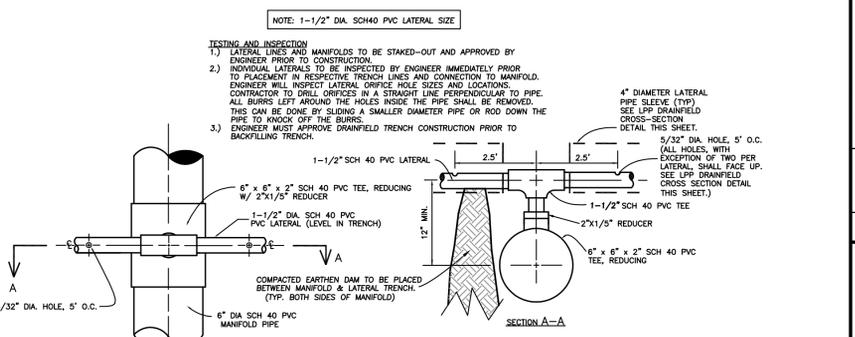
**FORCE MAIN THRUST BLOCKS @ BENDS**  
N.T.S.

PRELIMINARY FOR PERMITTING ONLY

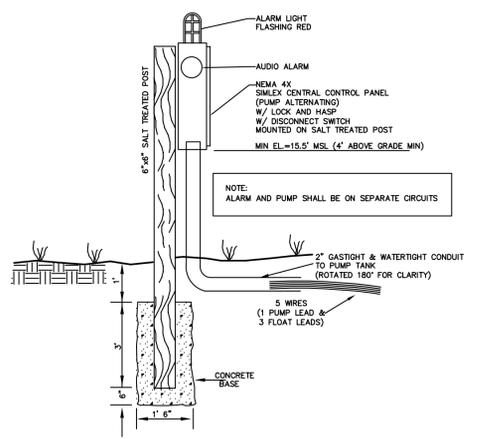


**LATERAL TURN-UP & TRENCH X-SECTION**  
N.T.S.

- NOTES:**
- ACTIVE DRAINFIELD AREA SHALL BE GRADED SO THAT STORMWATER RUNOFF DOES NOT POND ON DRAINFIELD AREA.
  - VEGETATE DRAINFIELD AND REPAIR AREAS AS PER SEEDING SPECIFICATION SHOWN ON SITE PLAN.
  - FILTER FABRIC SHALL BE TREXMA SPUNBOND TYPE 1112 ENGINEERING FABRIC OR EQUAL, AS APPROVED BY ENGINEER.
  - ALL TRENCHES, LATERALS, AND MANIFOLDS SHALL BE INSTALLED LEVEL.



**MANIFOLD-LATERAL CONNECTION**  
N.T.S.



**CONTROL PANEL MOUNTING**  
N.T.S.

CONTRACTOR TO VERIFY PANEL LOCATION WITH OWNER AND ORDER PUMP AND FLOAT LEADS WITH SUFFICIENT LENGTH TO REACH FROM PANEL TO PUMP TANK.

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INC. LICENSE # C-0028 87149  
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F-Mail: admin@quible.com



**REVISIONS**

NO.	DATE	RELEASED FOR WASTEWATER PERMITTING	REVISION PER ARJIS COMMENT
1	3/21/16		
2	4/9/16		

**UTILITY DETAILS - SYSTEM "B"**

**COTTAGES AT KILMARLIC THE KILMARLIC CLUB**

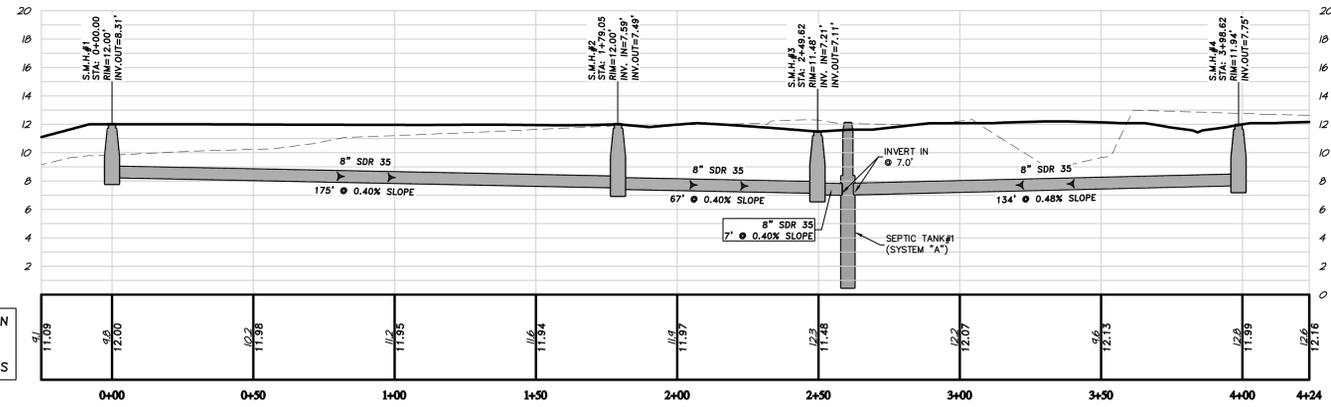
NORTH CAROLINA  
CURRITUCK COUNTY  
POPLAR BRANCH TOWNSHIP

COMMISSION NO. **P14029**  
DESIGNED BY **MWS**  
DRAWN BY **JMH**  
CHECKED BY **MWS**  
ISSUE DATE **02/26/16**

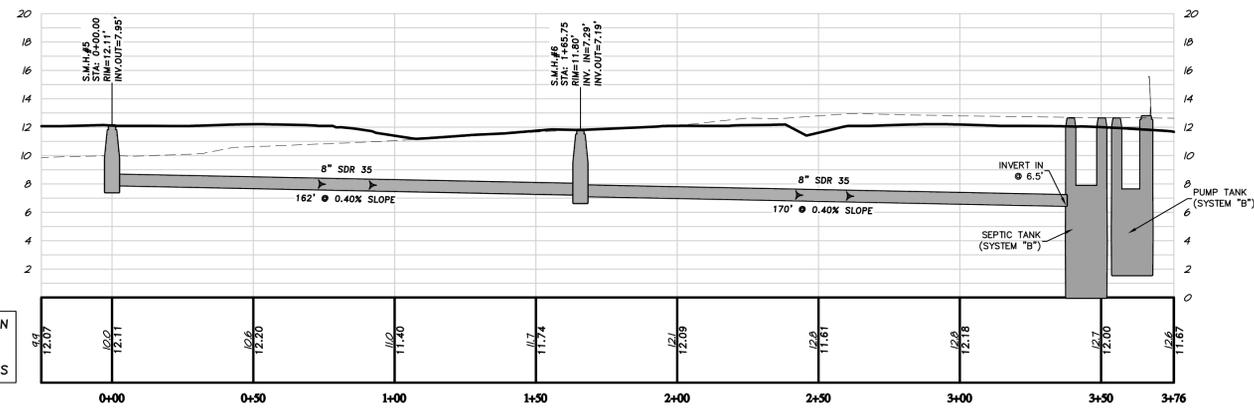
SHEET NO. **9**  
OF 12 SHEETS



PROFILE OF SEWER SYSTEM A COLLECTION  
 SCALE: 1" = 30'  
 VERTICAL SCALE: 1" = 6'  
 VERTICAL SCALE IS EXAGGERATED 5 TIMES



PROFILE OF SEWER SYSTEM B COLLECTION  
 SCALE: 1" = 30'  
 VERTICAL SCALE: 1" = 6'  
 VERTICAL SCALE IS EXAGGERATED 5 TIMES



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NO.	DATE	REVISIONS
1	3/21/16	RELEASED FOR WASTEWATER PERMITTING
2	4/6/16	REVISION PER ARHS COMMENT

**SEWER COLLECTION PROFILE VIEWS**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**  
 POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

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SHEET NO.  
**11**  
 OF 12 SHEETS

**Quible & Associates, P.C.**  
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 100 S. W. 10th Ave., Suite 200  
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**PERMANENT VEGETATION**

SEEDING DATES: APRIL 1 - AUGUST 31:	APPLICATION RATES/ACRE
SEED MIXTURE	
REBEL II FESCUE	130 LBS.
COMMON BERMUDA 'SAHARA' (HULLED)	215 LBS.
SEEDING DATES: SEPT. 1 - MARCH 31:	APPLICATION RATES/ACRE
SEED MIXTURE	
REBEL II FESCUE	250 LBS.
COMMON BERMUDA 'SAHARA' (UNHULLED)	215 LBS.

SEEDBED PREPARATION:  
 LOOSEN SOILS TO A DEPTH OF 6-8 INCHES USING A RIPPER, HARROW, OR CHISEL PLOW, BREAK UP CLODS, REMOVE UNACCEPTABLE GROWTH (STICKS, ROOTS), STONES (>3"), AND OTHER MATERIALS, AND WORK THE TOP 3-4 INCHES OF THE SOIL INTO A SEEDBED. THE AREA TO BE SEEDDED SHALL BE RE-COMPACTED UTILIZING A CULTIPACKER ROLLER AND A SMOOTH EVEN SOIL SURFACE WITH A LOOSE, UNIFORMLY FINE TEXTURE SHALL BE THE FINISHED GRADE.

SOIL AMENDMENTS:  
 OBTAIN A SOIL TEST TO DETERMINE APPLICATION RATES AND FOLLOW RECOMMENDATIONS OF SOIL TESTS. WHEN A SOIL TEST IS NOT POSSIBLE, APPLY 3,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 STARTER FERTILIZER.

MULCHING:  
 APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL.

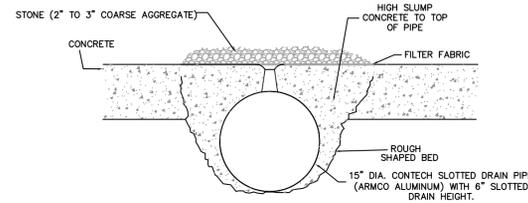
MAINTENANCE:  
 SATISFACTORY STABILIZATION AND EROSION CONTROL REQUIRES A COMPLETE VEGETATIVE COVER. EVEN SMALL BREACHES IN VEGETATIVE COVER CAN EXPAND RAPIDLY AND, IF LEFT UNATTENDED, CAN ALLOW SERIOUS SOIL LOSS FROM AN OTHERWISE STABLE SURFACE. A SINGLE HEAVY RAIN IS OFTEN SUFFICIENT TO GREATLY ENLARGE BARE SPOTS, AND THE LONGER REPAIRS ARE DELAYED, THE MORE COSTLY THEY BECOME. PROMPT ACTION WILL KEEP SEDIMENT LOSS AND REPAIR COST DOWN. NEW SEEDLINGS SHOULD BE INSPECTED FREQUENTLY AND MAINTENANCE PERFORMED AS NEEDED. IF RILLS AND GULLIES DEVELOP, THEY MUST BE FILLED IN, RE-SEEDDED, AND MULCHED AS SOON AS POSSIBLE. DIVERSIONS MAY BE NEEDED UNTIL NEW PLANTS TAKE HOLD.

MAINTENANCE REQUIREMENTS EXTEND BEYOND THE SEEDING PHASE. (COMPLETE VEGETATIVE COVER IS REQUIRED REGARDLESS OF COUNTY ISSUANCE OF A CERTIFICATE OF OCCUPANCY AND FINAL PAYMENT WILL NOT BE AWARDED UNTIL COMPLETE ESTABLISHMENT OF VEGETATIVE COVER.) WEAK OR DAMAGED SPOTS MUST BE RELIMED, FERTILIZED, MULCHED, AND RESEDED AS PROMPTLY AS POSSIBLE. REFERTILIZATION MAY BE NEEDED TO MAINTAIN PRODUCTIVE STANDS.

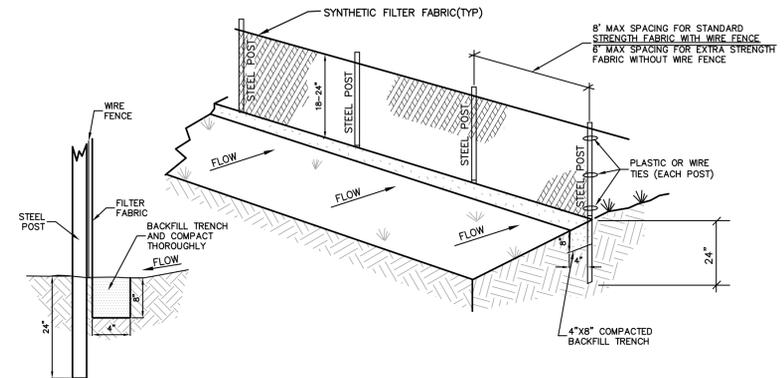
**TEMPORARY VEGETATION**

SEEDING DATES: AUG. 16 - APRIL 15:	APPLICATION RATES/ACRE
SEED MIXTURE	
RYE GRAIN	120 LBS.
SEEDING DATES: APRIL 16 - AUG. 15:	APPLICATION RATES/ACRE
SEED MIXTURE	
GERMAN MILLET	40 LBS.

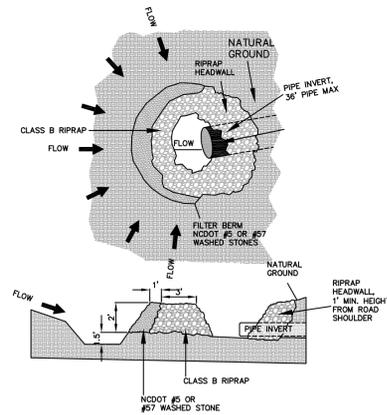
**SEEDING SPECIFICATIONS**



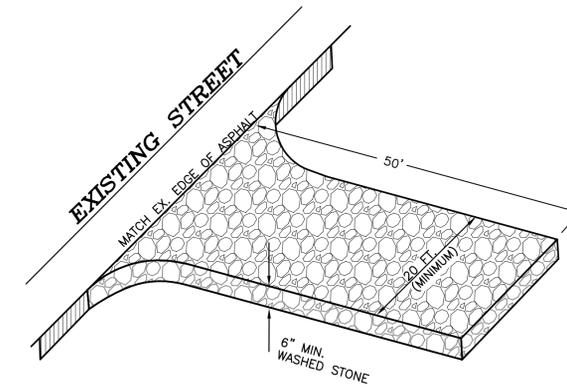
**SLOTTED DRAIN INLET PROTECTION DETAIL**  
 N.T.S.



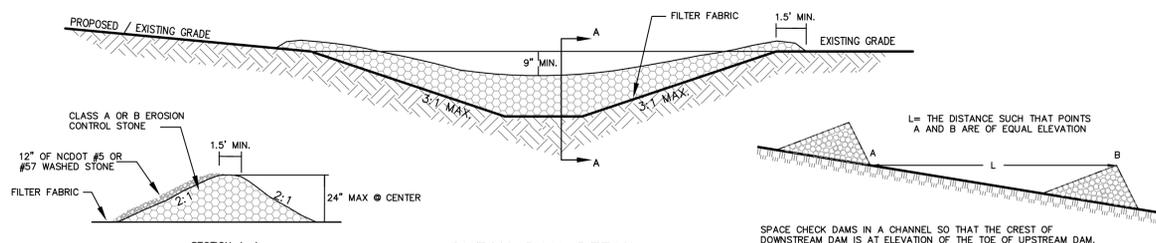
**SILT FENCE DETAIL**  
 N.T.S.



**CULVERT INLET PROTECTION**  
 N.T.S.



**GRAVEL CONSTRUCTION ENTRANCE/EXIT DETAIL**  
 N.T.S.



**CHECK DAM DETAIL**  
 N.T.S.

SPACE CHECK DAMS IN A CHANNEL SO THAT THE CREST OF DOWNSTREAM DAM IS AT ELEVATION OF THE TOE OF UPSTREAM DAM.

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2	4/6/16	REVISION PER ARHS COMMENT

**SOIL EROSION & SEDIMENT CONTROL DETAILS**  
**COTTAGES AT KILMARLIC**  
**THE KILMARLIC CLUB**  
 CURRITUCK COUNTY NORTH CAROLINA  
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