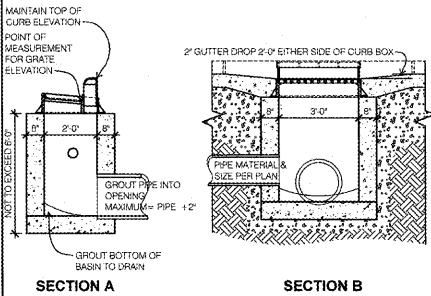
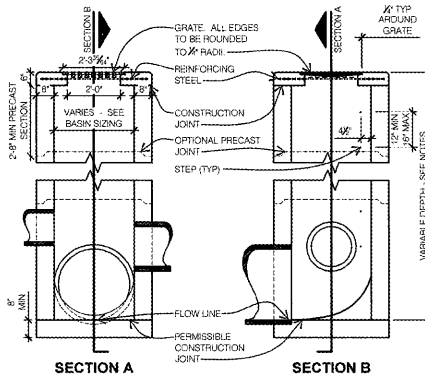


PLAN



SECTION A

SECTION B

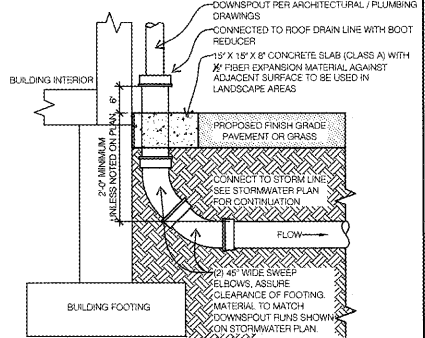


SECTION A

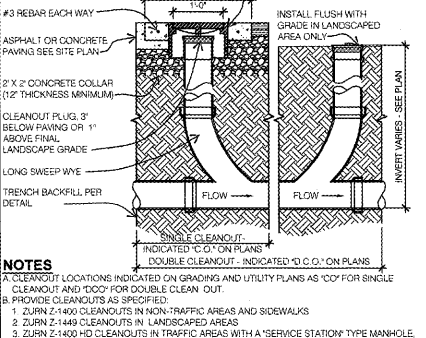
SECTION B

**DETAIL NOTES**  
 A. CAST-IN-PLACE WALLS SHALL HAVE A NOMINAL THICKNESS OF 6". PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" (160) AND BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING WITHOUT DAMAGE. BASINS OVER 12 FEET IN DEPTH SHALL HAVE WALLS REINFORCED WITH #4 BARS VERTICAL & HORIZONTAL 12" O.C. WITH 2" CLEAR FROM INSIDE FACE OF WALL. ANY CAST-IN-PLACE CONCRETE TO BE CLASS "C".

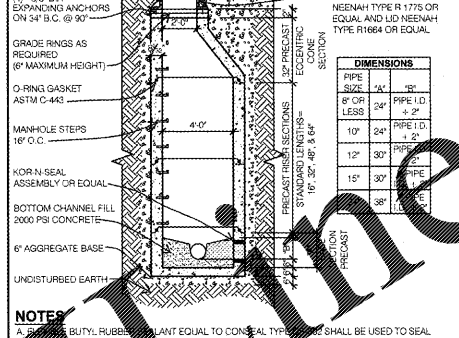
**CONCRETE CURB INLET**  
 SCALE: NONE



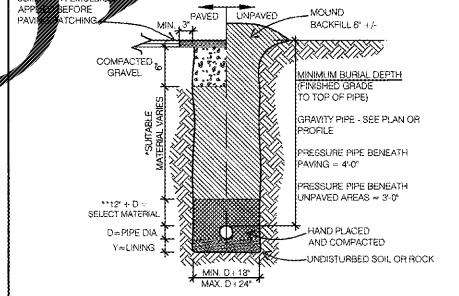
**EXTER. DOWNSPOUT BOOT**  
 SCALE: NONE



**PIPE CLEANOUT**  
 SCALE: NONE



**STORM MANHOLE**  
 SCALE: NONE



**TRENCH INSTALLATION**  
 SCALE: NONE

**BASIN SIZING**

INSIDE DIMENSION	PIPE SIZE	TOP SLAB REINFORCING AT 2' O.C.
3'-0" x 3'-0"	UP TO 36"	(6) #4 BARS
4'-0" x 4'-0"	36" TO 48"	(12) #4 BARS

**CONCRETE TABLE**

TYPE OF AGGREGATE	DRY AGGREGATES (L.B.C.Y.)			CEMENT CONTENT (L.B.C.Y.)	WATER-CEMENT RATIO
	PINE	COARSE	TOTAL		
GRAVEL	1180	1735	2915	800	0.5
LIMESTONE	1285	1630	2915	600	0.5
SLAG	1350	1560	2710	600	0.5

**NOTES**  
 A. GRATE: NEEHAH NO. R-4659-C OR EAST JORDAN TYPE M271, APPROVED EQUAL WHEN APPROVED BY ENGINEER.  
 B. WALLS: CAST-IN-PLACE WALLS SHALL HAVE A NOMINAL THICKNESS OF 6". PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" AND BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE. PRECAST WALLS SHALL BE 6" THICK.  
 C. STEPS: STEPS SHALL BE PROVIDED WHERE THE DEPTH OF THE STRUCTURE EXCEEDS 6".  
 D. CONCRETE: CAST-IN-PLACE CONCRETE TO MEET THE REQUIREMENTS SPECIFIED IN THE CONCRETE TABLE. ALL PRECAST CONCRETE SHALL MEET THE REQUIREMENTS OF ASTM C408.  
 E. INLETS OVER 12" IN DEPTH SHALL BE PRECAST OR CAST-IN-PLACE CONCRETE, REINFORCED WITH #4 BARS ON 12" O.C. BOTH VERTICALLY AND HORIZONTALLY WITH 2" CLEARANCE FROM INSIDE WALL FACE.  
 F. PRECAST BASIN: IF PRECAST BASE IS USED, IT SHALL BE SET DEEP ENOUGH SO THAT THE TOP OF THE CURB PROVIDES THE GRATE ELEVATION SPECIFIED IN THE PLANS. PRECAST MANHOLE RINGS SHALL BE USED TO ADJUST THE TOP ELEVATION.  
 G. LOCATION AND ELEVATION: WHERE SHOWN ON THE PLANS, THE LOCATION AND THE ELEVATION ARE TO BE CENTERED.  
 H. MINIMUM DEPTH: THE MINIMUM DEPTH SHALL BE THE OUTSIDE DIAMETER (O.D.) OF THE UTILITY. THE MINIMUM DEPTH SHALL BE THE O.D. OF THE PIPE BEING SUPPLIED PLUS 2" WHEN FABRICATED FROM CORRUGATED PIPE. THE INTERSTITIAL SPACE SHALL BE FILLED WITH GROUT.

**SQUARE CATCH BASIN**  
 SCALE: NONE

**BACKFILL SCHEDULE**

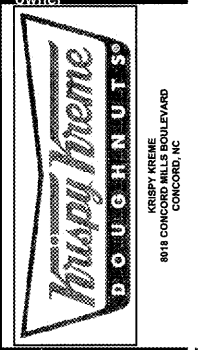
CONDITION & PIPE	MATERIAL	THICKNESS	NOTES
DUCTILE IRON PIPE IN ORDINARY SOIL	SAND OR TYPE II, III	3"	SUITABLE MATERIAL SHOULD CONTAIN NO STONES GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAXIMUM OF 12" LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.
RCP PIPE IN ORDINARY SOIL	SAND OR TYPE II, III	3"	TYPE I MATERIAL SHALL BE EITHER GRAVEL OR ENCAUSTIC MATERIAL CONTAINING NO STONES GREATER THAN 1/2" IN DIAMETER, NO FROZEN LUMPS, NO CLAY, AND NO ORGANIC MATERIAL.
ALL PIPE OVER BEDROCK OR LEDGE	SAND OR TYPE II, III	6"	TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1/2" SQUARE OPENING, NOT MORE THAN 25% PASSING A 3/8" SQUARE OPENING AND NOT MORE THAN 5% PASSING A 1/4" SQUARE OPENING.
DUCTILE IRON PIPE IN CLAY OR MUCK	SAND	4"	TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1/2" SQUARE OPENING AND 0.5% PASSING A 3/8" SQUARE OPENING.
RCP PIPE IN CLAY	SAND	6"	TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1/2" SQUARE OPENING AND 0.5% PASSING A 3/8" SQUARE OPENING.
PLASTIC-ALL	SAND OR TYPE II, III	6"	TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1/2" SQUARE OPENING AND 0.5% PASSING A 3/8" SQUARE OPENING.

**NOTES**  
 WHERE BACKFILL IS DESIGNATED "COMPACTED", THIS MEANS IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. ALL FILL PLACED BELOW PIPES AND STRUCTURES MUST MEET THIS REQUIREMENT.  
 FOR ALL TRENCHES WITH A GRADE GREATER THAN 4% AND/OR WHERE GROUNDWATER IS APPARENT, INSTALL CLAY DAMS AROUND PIPE AT 10' INTERVALS.

**TRENCH INSTALLATION**  
 SCALE: NONE

architect + engineer  
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project no. | KRKN5002



project info

issue dates

submission: 09/06  
 OWNER/LL REVIEW: 11/01/2018  
 BID SET: 11/01/2018  
 PERMIT SET: 11/01/2018

revisions:

#	description	date
1		

designed by: B. FRIDENMAKER  
 checked by: A. SCHALL

seal



NOV 02 2018

sheet info

SITE UTILITY DETAILS

C1.07

CHIEF