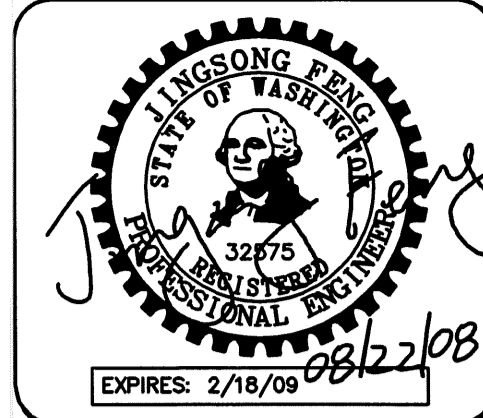


PORTION OF THE SW 1/4 OF THE NW 1/4 OF SEC. 33, TWN. 24N., RGE. 5E., W.M.

APPROVED FOR CONSTRUCTION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
CITY OF NEWCASTLE

THESE DRAWINGS ARE APPROVED FOR CONSTRUCTION FOR A PERIOD OF 12 MONTHS FROM THE DATE SHOWN HEREON. THE CITY RESERVES THE RIGHT TO MAKE REVISIONS, ADDITIONS, DELETIONS, OR MODIFICATIONS SHOULD CONSTRUCTION BE DELAYED BEYOND THIS TIME LIMITATION. THE CITY, BY APPROVING THESE DRAWINGS, ASSUMES NO LIABILITY IN REGARDS TO THEIR ACCURACY OR OMISSIONS.



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CITY OF NEWCASTLE

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PROJECT NO.: 05119  
DRAWN BY: FRJ  
ISSUE DATE: 04-01-08  
SHEET REV.: 08-22-08

DETAILS

05119DT03-C11.DWG

C11

**NOTES:**

- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (ASHTO M 189) & C880 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
- AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A447 (ASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
- ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUDED IF WALL IS LEFT INTACT.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
- ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
- THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
- THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
- CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-62ID. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
- FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
- FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B1-b.
- EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

**CITY OF NEWCASTLE**  
CATCH BASIN - TYPE 1

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-1  
ROGER KUYKENDALL, P.E.  
BY CITY

**NOTES:**

- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (ASHTO M189) AND ASTM C880 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
- HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 2" MIN. CLEARANCE. CATCH BASIN DETAILS, HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLD BETWEEN THE LAST STEP AND TOP OF THE FINISHED GRADE.
- ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUDED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS. MAX. HOLE SIZE SHALL BE 34" FOR 48" CATCH BASIN, 42" FOR 54" C.B., 48" FOR 60" C.B., 60" FOR 72" C.B., 66" FOR 84" C.B., MIN. DISTANCE BETWEEN HOLES SHALL BE 3" FOR 48", 1 1/2" AND 60" C.B.; 1 1/2" FOR 72" AND 84" C.B.
- CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH SEC. 7.05 OF THE STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
- ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
- MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
- FOR DETAILS SHOWING LADDER, STEPS, HANDRAILS AND TOP SLABS, SEE OTHER STANDARD DETAILS.
- SEE THE STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.

**CITY OF NEWCASTLE**  
CATCH BASIN TYPE 2  
48", 54", 60", 72", & 96"

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-3  
ROGER KUYKENDALL, P.E.  
BY CITY

**NOTES:**

- USE WITH FRAME DRILLED AND TAPPED FOR LOCKING BOLTS.
- USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS STEEL TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG.
- COVER MATERIAL IS CAST IRON PER ASTM A48 CLASS 30.
- SHALL CONFORM TO SEC. 7.05 OF THE STANDARD SPECIFICATIONS.
- COVER SHALL HAVE THE WORD "DRAIN" IN 2-INCH RAISED LETTERS.

**CITY OF NEWCASTLE**  
SOLID STORM DRAIN COVER

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-4  
ROGER KUYKENDALL, P.E.  
BY CITY

**NOTES:**

- DRILL AND TAP FOR AND PROVIDE TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG.
- FRAME MATERIAL IS CAST IRON PER ASTM A48 CLASS 30 OR BETTER.
- SET FRAME TO GRADE AND CONSTRUCT ROAD AND OUTER TO BE FLUSH WITH FRAME.

**CITY OF NEWCASTLE**  
STANDARD FRAME INSTALLATION

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-6  
ROGER KUYKENDALL, P.E.  
BY CITY

**NOTES:**

- SELF-LOCK VANED GRATE MANUFACTURER SUBJECT TO APPROVAL BY ENGINEER.
- USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG. NOTE SLOT DETAIL.
- MATERIAL IS DUCTILE IRON ASTM A536 GRADE 60-55-06.
- "OUTFALL TO STREAM DUMP NO POLLUTANTS" IN WELDED LETTERS SHALL BE LOCATED ON GRATE AS SHOWN, OR ON BORDER AREA.
- SHALL CONFORM TO SEC. 7.05 OF THE STANDARD SPECIFICATIONS.
- WELDING IS NOT PERMITTED.
- EDGES SHALL HAVE 0.125" RADIUS, 0.125" CHAMBER OR COMPLETE DEBURRING.
- USE A BI-DIRECTIONAL VANED GRATE IN S45 VERTICAL CURVES.

**CITY OF NEWCASTLE**  
VANED GRATE

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-7  
ROGER KUYKENDALL, P.E.  
BY CITY

**NOTES:**

- SET TO GRADE AND CONSTRUCT ROAD AND OUTER TO BE FLUSH WITH FRAME.

**CITY OF NEWCASTLE**  
THROUGH CURB INLET FRAME & GRATE WITH VERTICAL CURB

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-8  
ROGER KUYKENDALL, P.E.  
BY CITY

**NOTES:**

- MATERIAL SHALL CONFORM TO SECTION 9-05.15(3) OF THE STANDARD SPECIFICATIONS.
- PATTERN ON TOP SURFACE OF HOOD SHALL BE 3/16" NON-SKID DIAMOND.
- BOLT, WASHER, AND NUT SHALL BE GALVANIZED OR CORROSION RESISTANT.

**CITY OF NEWCASTLE**  
THROUGH CURB INLET FRAME

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-9  
ROGER KUYKENDALL, P.E.  
BY CITY

**RIGID PIPE BEDDING**

- 30" MAXIMUM FOR PIPE UP TO AND INCLUDING 12" FOR PIPE LARGER THAN 12". O.D. OF PIPE PLUS 16".
- HAND COMPACTED BACKFILL.
- SPRING LINE.
- COMPACTED BEDDING GRAVEL PER SECTION 9-03.12(3), "GRAVEL BACKFILL FOR PIPE ZONE BEDDING" OF THE STANDARD SPECIFICATIONS, OR CONCRETE IF SPECIFIED. FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2).

**FLEXIBLE PIPE BEDDING**

- SEE ABOVE FOR TRENCH WIDTH.
- HAND COMPACT BACKFILL.
- COMPACTED BEDDING GRAVEL PER SECTION 9-03.16, "BEDDING MATERIAL FOR THERMOPLASTIC PIPE" OF STANDARD SPECIFICATIONS, OR CONCRETE IF SPECIFIED.
- PVC PIPE.
- FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2).

**CONCRETE ENCASEMENT**

- SEE ABOVE FOR TRENCH WIDTH.
- CONCRETE, 2000 PSI (SEE NOTE 3).
- FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2).

**DETENTION PIPES WITH UNDERDRAINS (SEE NOTE 4)**

- RIGID OR FLEXIBLE PIPE BEDDING (PER ABOVE).
- FILTER FABRIC ABOVE GRAVEL BACKFILL FOR DRAINS. PROVIDE 12" MIN. OVERLAP AT SEAMS.
- GRAVEL BACKFILL FOR DRAINS PER SECTION 9-03.12(4) OF THE STANDARD SPECIFICATIONS FROM BOTTOM OF UNDERDRAIN PIPE TO SPRINGLINE OF DETENTION PIPE.
- UNDERDRAIN PIPE (TYP.) 6" MIN. PERF. PER STANDARDS (SEE NOTE 5).
- FOUNDATION GRAVEL, IF REQUIRED (SEE NOTE 2).

**NOTES:**

- COMPACTED CRUSHED SURFACING TOP COURSE PER SECTION 9-03.9(3), "CRUSHED SURFACING", OF THE STANDARD SPECIFICATIONS CAN ALSO BE USED AS BEDDING GRAVEL.
- EXCAVATE UNSTABLE MATERIAL DOWN TO FIRM SOIL AND REPLACE WITH FOUNDATION GRAVEL PER SECTION 9-03.9(1), "BALLAST", OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANCHORING PIPE TO PREVENT FLotation DURING CONCRETE PLACEMENT.
- WHEN THE DESIGN OF TANKS OR PIPES DOES NOT TAKE INTO ACCOUNT BOUANCY, UNDERDRAINS SHALL BE PROVIDED.
- PROVIDE CLEANOUTS ON UNDERDRAIN PIPE EVERY 100 FEET, AND AT BENDS OR JUNCTIONS.

**CITY OF NEWCASTLE**  
PIPE BEDDING DETAIL

APPROVED: \_\_\_\_\_ DATE: 8/1/2000 DWG. NO. SW-14  
ROGER KUYKENDALL, P.E.  
BY CITY