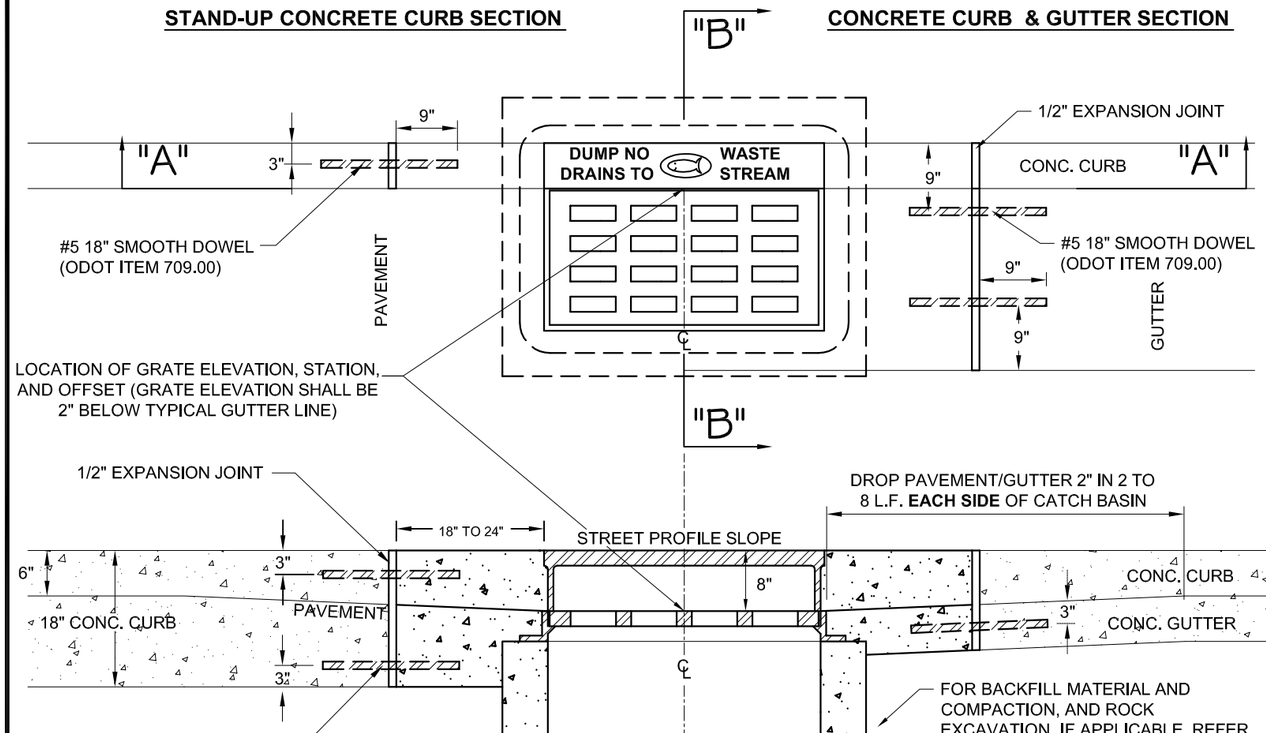
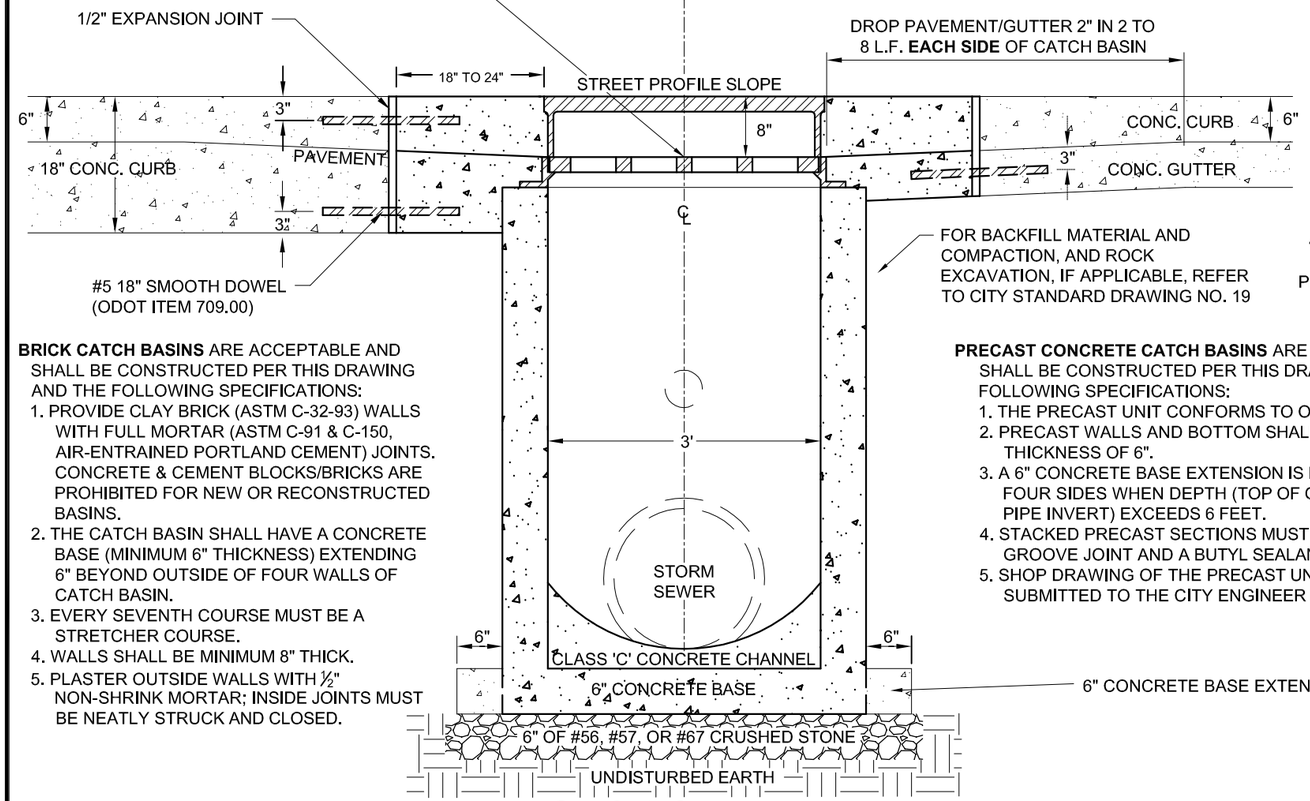
PLAN VIEW
NOT TO SCALE





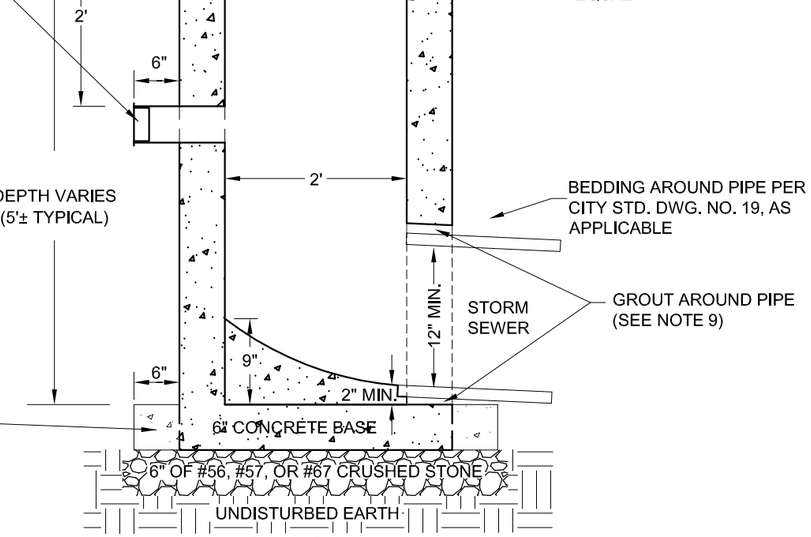
SECTION A-A
NOT TO SCALE

BRICK CATCH BASINS ARE ACCEPTABLE AND SHALL BE CONSTRUCTED PER THIS DRAWING AND THE FOLLOWING SPECIFICATIONS:

1. PROVIDE CLAY BRICK (ASTM C-32-93) WALLS WITH FULL MORTAR (ASTM C-91 & C-150, AIR-ENTRAINED PORTLAND CEMENT) JOINTS. CONCRETE & CEMENT BLOCKS/BRICKS ARE PROHIBITED FOR NEW OR RECONSTRUCTED BASINS.
2. THE CATCH BASIN SHALL HAVE A CONCRETE BASE (MINIMUM 6" THICKNESS) EXTENDING 6" BEYOND OUTSIDE OF FOUR WALLS OF CATCH BASIN.
3. EVERY SEVENTH COURSE MUST BE A STRETCHER COURSE.
4. WALLS SHALL BE MINIMUM 8" THICK.
5. PLASTER OUTSIDE WALLS WITH ½" NON-SHRINK MORTAR; INSIDE JOINTS MUST BE NEATLY STRUCK AND CLOSED.

PRECAST CONCRETE CATCH BASINS ARE ACCEPTABLE AND SHALL BE CONSTRUCTED PER THIS DRAWING AND THE FOLLOWING SPECIFICATIONS:

1. THE PRECAST UNIT CONFORMS TO ODOT ITEM 706.13.
2. PRECAST WALLS AND BOTTOM SHALL HAVE A MINIMUM THICKNESS OF 6".
3. A 6" CONCRETE BASE EXTENSION IS REQUIRED ON ALL FOUR SIDES WHEN DEPTH (TOP OF GRATE TO LOWEST PIPE INVERT) EXCEEDS 6 FEET.
4. STACKED PRECAST SECTIONS MUST HAVE A TONGUE/ GROOVE JOINT AND A BUTYL SEALANT.
5. SHOP DRAWING OF THE PRECAST UNIT SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.



SECTION B-B
NOT TO SCALE

(PRECAST CONCRETE CATCH BASIN SHOWN)

NOTES:

1. ALL WORK SHALL CONFORM TO ODOT ITEM 604 EXCEPT AS OTHERWISE NOTED HEREIN.
2. PRECAST CONCRETE OR BRICK CATCH BASINS ARE ALLOWED AS NOTED HEREIN.
3. ALL CONCRETE SHALL CONFORM TO ODOT ITEM 499 CLASS C (4000 psi).
4. WHEN STREET PROFILE SLOPE IS 5% OR STEEPER, CONSTRUCT CATCH BASIN IN ACCORDANCE WITH CITY STD. DWG. NO. 3.
5. A CONCRETE CHANNEL SHALL BE POURED INTO THE BOTTOM OF THE CATCH BASIN USING CLASS 'C' CONCRETE. THE CHANNEL SHALL TAPER FROM 9" THICKNESS TO 2" MIN. THICKNESS AT THE LOWEST SEWER INVERT AND SHALL BE FINISHED WITH A SMOOTH SURFACE.
6. THE EXCAVATED AREA AROUND THE CATCH BASIN SHALL BE BACKFILLED WITH ODOT ITEM 703.11, TYPE 1 (304, 411, OR 617) COMPACTED IN 8" LIFTS OR ODOT ITEM 613. NO FOUNDRY SAND OR SLAG PERMITTED.
7. EXPANSION JOINT MATERIAL SHALL CONFORM TO ODOT ITEM 705.03. 1" OF JOINT SEALER (705.04) SHALL BE PLACED OVER EXPANSION JOINTS.
8. CASTINGS SHALL BE EAST JORDAN 7030 CURB INLET WITH TYPE T1 BACK AND TYPE M6 VANE GRATE, NEENAH R-3067-L, OR EQUAL APPROVED BY CITY ENGINEER (GRATE USED SHALL NOT BE SPECIFICALLY IDENTIFIED BY MANUFACTURER AS NOT SUITABLE FOR BICYCLE TRAFFIC). THE CASTING BACK (HOOD) MUST INCLUDE "ECO-SENSITIVE" MARKINGS SUCH AS: "DUMP NO WASTE; DRAINS TO STREAM" AND AN AQUATIC LIFE LOGO. THE LETTERING AND LOGO SHALL BE RAISED OR RECESSED AND INTEGRAL WITH THE CASTING OF THE BACK. ALTERNATE NOTATION OR LOGO IS SUBJECT TO THE CITY ENGINEER'S APPROVAL.
9. ALL OPENINGS AND KNOCKOUTS FOR INLET AND OUTLET PIPING SHALL BE FASHIONED NEATLY. ALL ANNULAR SPACE SHALL BE FILLED WITH CEMENT GROUT, BRICK AND MORTAR, OR CLASS 'C' CONCRETE.
10. ONE 4" DIAMETER INLET PIPE SHALL BE INSTALLED ON THE SIDE OF THE CATCH BASIN OPPOSITE THE STREET (AS SHOWN).
11. KNOCK-OUT PANELS ARE NOT ALLOWED UNLESS PRE-APPROVED BY THE CITY ENGINEER.
12. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MAR. 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_01.dwg**

REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 1

CURB INLET CATCH BASIN

NOTES:

1. ALL WORK SHALL CONFORM TO ODOT ITEM 604 EXCEPT AS OTHERWISE NOTED HEREIN.
2. PRECAST CONCRETE OR BRICK CATCH BASINS ARE ALLOWED AS NOTED HEREIN.
3. IF THE CATCH BASIN WILL BE USED IN A TRAFFIC-BEARING APPLICATION, THE PRECAST CONCRETE PORTION OF AN ODOT 2-2B CATCH BASIN MAY BE USED. HOWEVER, THE INLET FRAME AND GRATE AS SPECIFIED HEREIN SHALL BE USED IN LIEU OF THE ODOT 2-2 "LAY-IN" GRATE. ALL ANNULAR SPACE REMAINING BETWEEN THE BOTTOM OF THE INLET FRAME AND THE TOP OF THE PRECAST SECTION SHALL BE FILLED WITH CEMENT GROUT OR CLASS 'C' CONCRETE. IF THE CATCH BASIN WILL BE USED IN A NON-TRAFFIC-BEARING APPLICATION, AN ODOT 2-2 CATCH BASIN MAY BE USED WITH THE STANDARD "LAY-IN" GRATE.
4. ALL CONCRETE SHALL CONFORM TO ODOT ITEM 499 CLASS C (4000 psi).
5. A CONCRETE CHANNEL SHALL BE POURED INTO THE BOTTOM OF THE CATCH BASIN USING CLASS 'C' CONCRETE. THE CHANNEL SHALL TAPER FROM 9" THICKNESS TO 2" MIN. THICKNESS AT THE LOWEST SEWER INVERT AND SHALL BE FINISHED WITH A SMOOTH SURFACE.
6. THE EXCAVATED AREA AROUND THE CATCH BASIN SHALL BE BACKFILLED WITH ODOT ITEM 703.11, TYPE 1 (304, 411, OR 617) COMPACTED IN 8" LIFTS. NO FOUNDRY SAND OR SLAG PERMITTED.
7. WHERE CATCH BASIN WILL BE LOCATED WITHIN CROSSWALK, AT ADA RAMP, OR IN DESIGNATED BIKE LANE, CASTING SHALL BE EAST JORDAN IRON WORKS (EJIW) 5250 INLET WITH V-5622080 ADA GRATE OR NEENAH R-3405-A INLET WITH TYPE 'L' GRATE, OR EQUAL APPROVED BY CITY ENGINEER. AS APPLICABLE, GRATE SHALL BE ORIENTED SUCH THAT THE LONG OPENINGS ARE PERPENDICULAR TO NORMAL DIRECTION OF BICYCLE TRAFFIC FLOW. IN OTHER LOCATIONS, CASTING SHALL BE EJIW 5250 OR NEENAH R-3405 INLET AND STANDARD GRATE MAY BE USED. IN ALL LOCATIONS, GRATE MUST INCLUDE "ECO-SENSITIVE" MARKINGS SUCH AS: "DUMP NO WASTE; DRAINS TO STREAM" AND AN AQUATIC LIFE LOGO. THE LETTERING AND LOGO SHALL BE RAISED OR RECESSED AND INTEGRAL WITH THE CASTING. ALTERNATE NOTATION OR LOGO IS SUBJECT TO THE CITY ENGINEER'S APPROVAL
8. ALL OPENINGS AND KNOCKOUTS FOR INLET AND OUTLET PIPING SHALL BE FASHIONED NEATLY. ALL ANNULAR SPACE SHALL BE FILLED WITH CEMENT GROUT, BRICK AND MORTAR, OR CLASS 'C' CONCRETE.
9. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

BRICK CATCH BASINS ARE ACCEPTABLE AND SHALL BE CONSTRUCTED PER THIS DRAWING AND THE FOLLOWING SPECIFICATIONS:

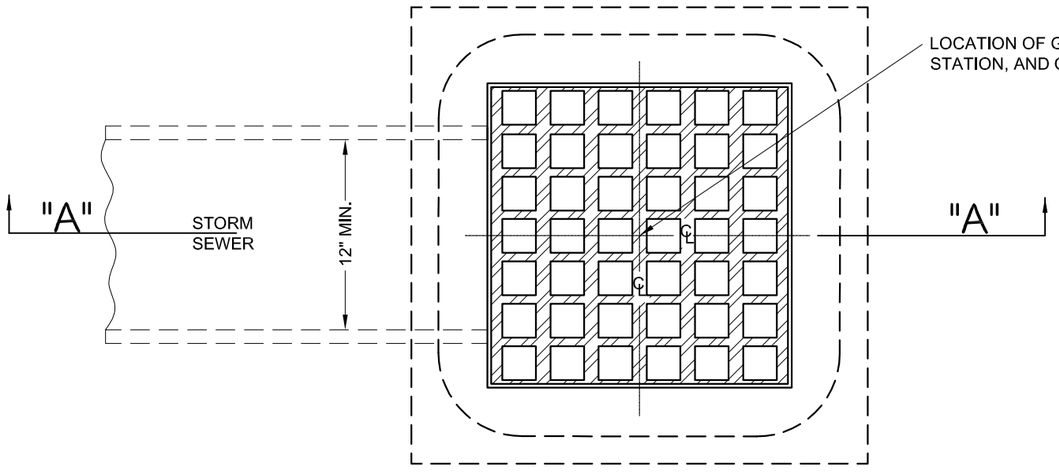
1. PROVIDE CLAY BRICK (ASTM C-32-93) WALLS WITH FULL MORTAR (ASTM C-91 & C-150, AIR-ENTRAINED PORTLAND CEMENT) JOINTS. CONCRETE & CEMENT BLOCKS/BRICKS ARE PROHIBITED FOR NEW OR RECONSTRUCTED BASINS.
2. THE CATCH BASIN SHALL HAVE A CONCRETE BASE (MINIMUM 6" THICKNESS) EXTENDING 6" BEYOND OUTSIDE OF FOUR WALLS OF CATCH BASIN.
3. EVERY SEVENTH COURSE MUST BE A STRETCHER COURSE.
4. WALL SHALL BE MINIMUM 8" THICK.
5. PLASTER OUTSIDE WALLS WITH ½" NON-SHRINK MORTAR; INSIDE JOINTS MUST BE NEATLY STRUCK AND CLOSED.

PRECAST CONCRETE CATCH BASINS ARE ACCEPTABLE AND SHALL BE CONSTRUCTED PER THIS DRAWING AND THE FOLLOWING SPECIFICATIONS:

1. THE PRECAST UNIT SHALL CONFORM TO ODOT ITEM 706.13.
2. PRECAST WALLS AND BOTTOM SHALL HAVE A MINIMUM THICKNESS OF 6".
3. A 6" CONCRETE BASE EXTENSION IS REQUIRED ON ALL FOUR SIDES WHEN DEPTH (TOP OF GRATE TO LOWEST PIPE INVERT) EXCEEDS 6 FEET.
4. STACKED PRECAST SECTIONS MUST HAVE A TONGUE/ GROOVE JOINT AND A BUTYL SEALANT.
5. SHOP DRAWING OF THE PRECAST UNIT SHALL BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL.

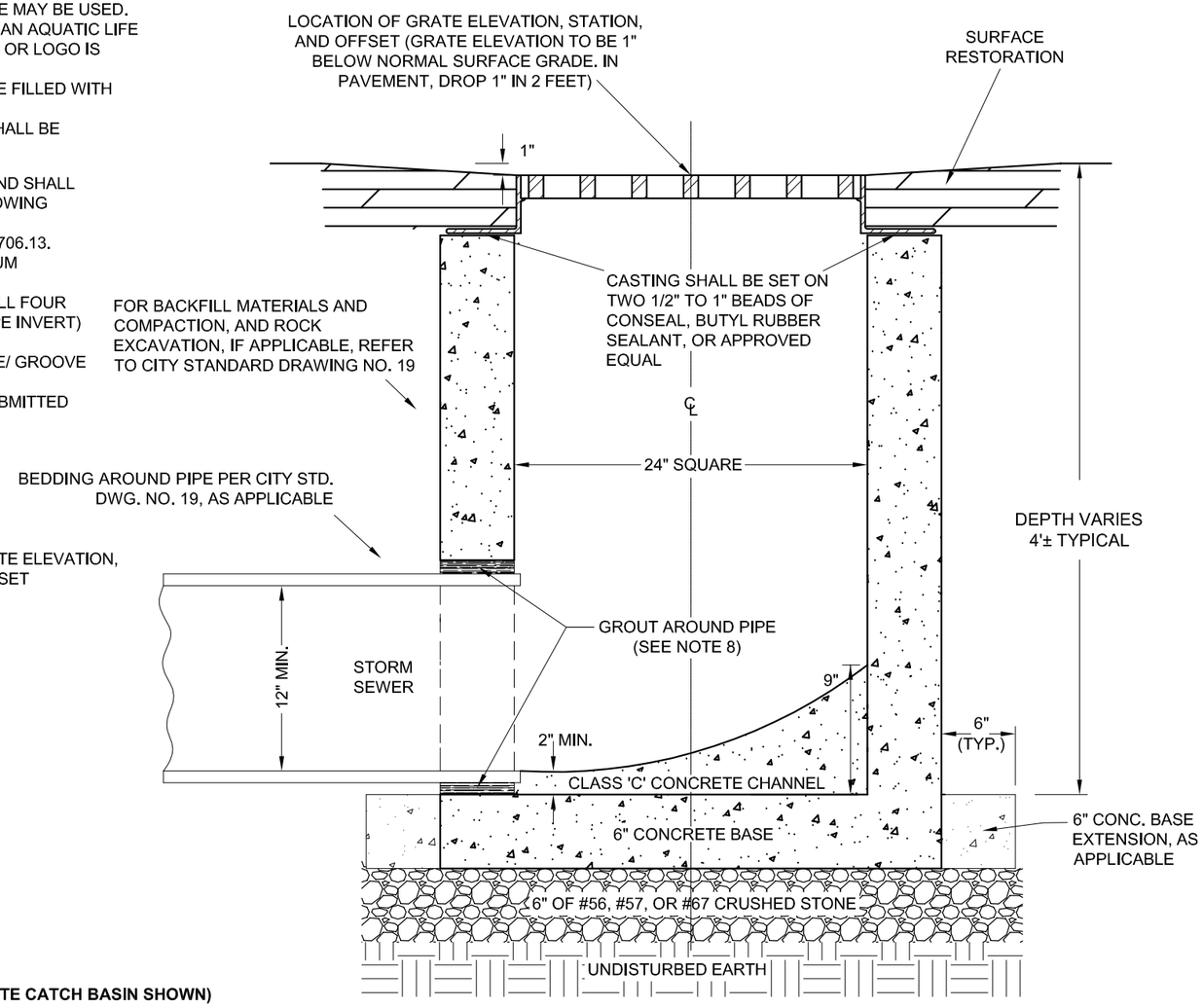
PLAN VIEW

NOT TO SCALE



SECTION A-A

NOT TO SCALE



(PRECAST CONCRETE CATCH BASIN SHOWN)

OFFICE OF THE CITY ENGINEER
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2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MAR. 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: ce_04.dwg

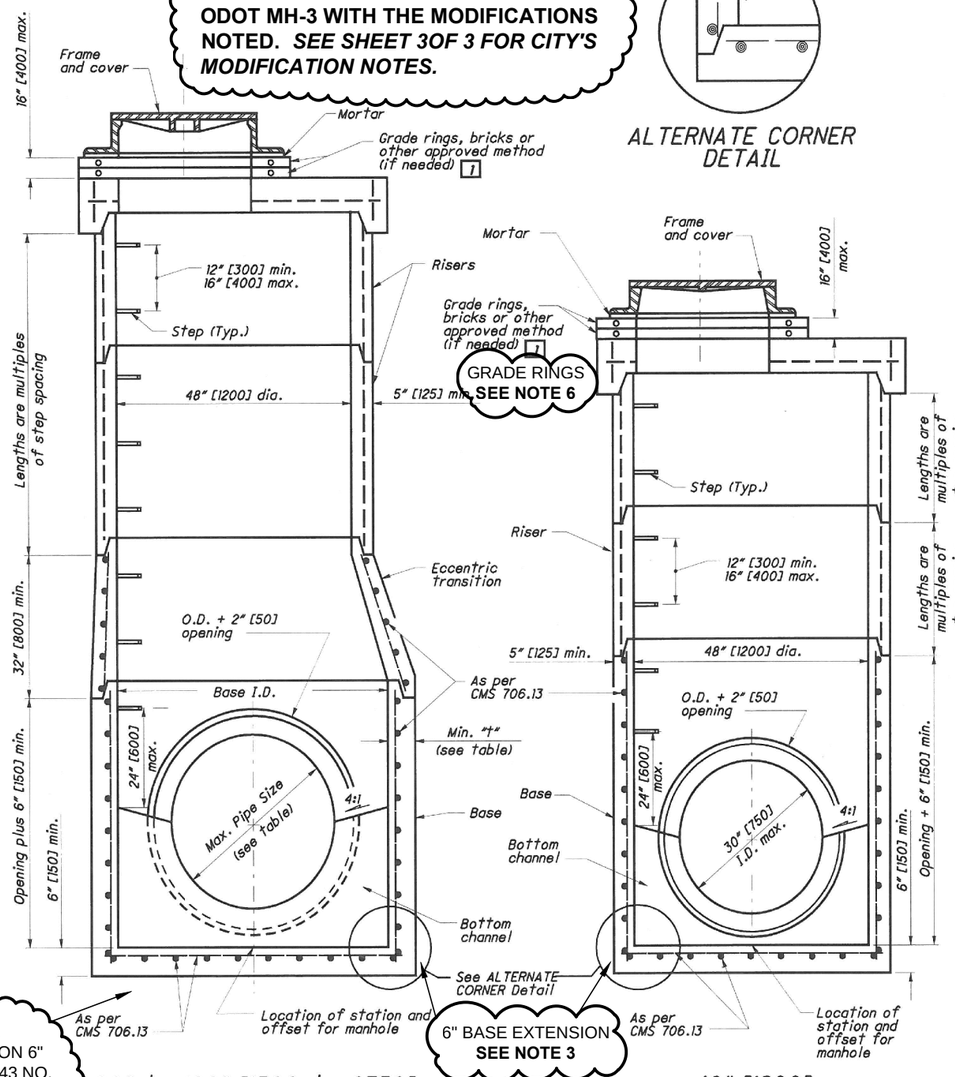
REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 4

SQUARE-TOP CATCH BASIN

THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED. *SEE SHEET 3OF 3 FOR CITY'S MODIFICATION NOTES.*



ALTERNATE CORNER DETAIL

SECTION VIEWS OF REINFORCED PRECAST MANHOLES

NOTES

GENERAL: *With normal soil and site conditions, this standard precast manhole may be used for any required manhole depth. Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling. Handling device for the flat slab shall be left in place.* — SEE NOTE 1

TOP: *This section shall be ~~a flat slab, unless~~ an eccentric cone ~~is specified.~~* — SEE NOTE 2

TRANSITION (OR REDUCER): *This section can be ~~either~~ eccentric cone ~~or flat slab.~~* — SEE NOTE 2

BASE: *Manhole No. 3 is shown with a monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete, precast in the base or field constructed as shown on SCD* ***MH-1.1 and MH-3.1.*** — SEE NOTE 3

RISER SECTIONS: *Openings for 18" [450] and smaller inlet pipes may be either prefabricated, or cut in the field provided the sides of the pipe at the springline do not project into the manhole.* — SEE NOTE 4

CONNECTIONS: *Connections between precast manhole sections, and pipes on sanitary sewers, may be sealed with resilient connectors conforming to ASTM C 923.* — SEE NOTE 4

JOINT SEAL: *Seal between precast manhole sections on sanitary sewers shall be resilient and flexible gasket joints per CMS 706.11.*

OPENINGS: *The maximum pipe opening shall be the O.D. of the pipe being supplied plus 2" [50] when fabricated or field cuts. Fill any voids per CMS 601.* — SEE NOTE 4

MATERIALS: *Materials for bases and other precast sections, including reinforcement not specified hereon, shall comply with the requirements of CMS 706.13.*

DROP PIPE: *When specified on the plans, drop pipe shall be constructed ~~as shown on SCD MH-3.1.~~* — SEE NOTE 4

STEPS, FRAMES AND COVERS: *~~Shall comply with the requirements set forth on SCD MH-1.1.~~* — SEE NOTE 5

TOP SLAB REBAR: *Reinforcing steel used within the top slab shall be epoxy coated.*

LEGEND

1 *Reconstruction to grade only. Approved materials are kept on file by the Office of Materials Management.*

MAXIMUM PIPE SIZES		
BASE I.D.	**MIN. "t"**	**MAX. PIPE SIZE**
60" [1500]	5" [125]	36" [900]
72" [1800]	6" [150]	48" [1200]
84" [2100]	7" [175]	54" [1350]
90" [2250]	7½" [190]	60" [1500]
96" [2400]	8" [200]	66" [1650]
108" [2750]	9" [230]	72" [1800]

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
STATE HYDRAULIC ENGINEER

REVISIONS
7-20-01
7-19-02
7-15-05
1-20-06

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

PRIMARY HYDRAULIC ENGINEER J. Stains

OFFICE OF STRUCTURAL ENGINEERING

STANDARD HYDRAULIC CONSTRUCTION DRAWING
MANHOLE No. 3

SCD NUMBER **MH-1.2**

1 / 2

\\p\Construction Drawings\SCD\Hydraulics\MH\MH1.2 Jan06 V8.dgn 03-OCT-2008 10:45AM fchaek

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
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APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_10.dwg**

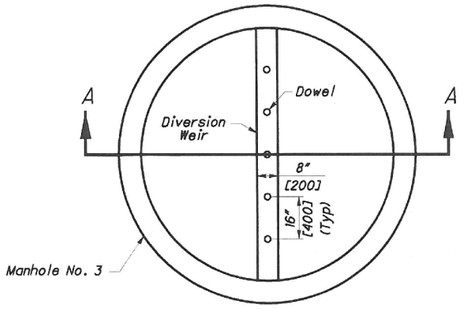
REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 10

PRECAST STORM OR SANITARY MANHOLE

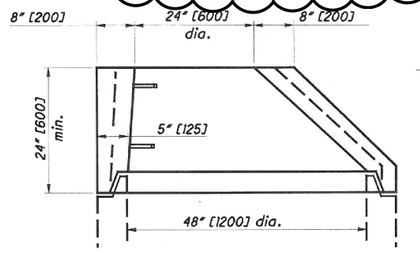
SHEET 1 OF 3



MANHOLE NO. 3 W/ __" BASE I.D. AND __" WEIR

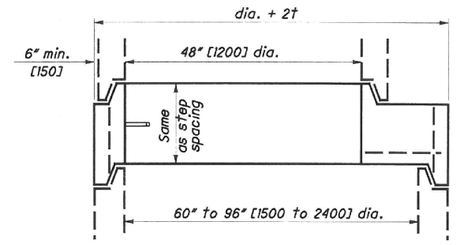
(NTS)

ECCENTRIC CONE IS STANDARD FOR CITY OF CANTON **SEE NOTE 2**



ALTERNATE ECCENTRIC CONE TOP

~~(Only if specified)~~



FLAT SLAB TRANSITION

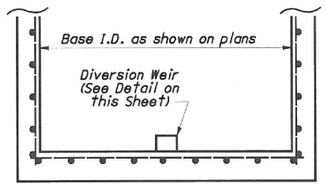
ONLY IF SPECIFIED SEE NOTE 2

NOTES

MANHOLE NO. 3 W/___" BASE I.D. AND ___" DIVERSION WEIR: *Furnish manhole base with precast diversion weir or construct diversion weir from Structure Concrete, Class C or Brick and Masonry Units conforming to CMS 604. A bottom channel section for the manhole is not required when a diversion weir is specified on the plans.*

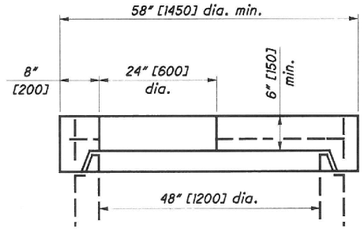
Place diversion weir perpendicular to flow of inflowing trunk sewer. Dowel concrete or masonry units into the base of the manhole to a depth of 3" [75] using epoxy coated #4 reinforcing bars. Start dowels at the center of the diversion weir and space 16" [400] on center across the entire weir.

All materials and labor, including excavation and backfill, shall be paid for at the contract price for ***ITEM 604 - MANHOLE NO. 3 WITH ___" BASE I.D. AND ___" DIVERSION WEIR.***



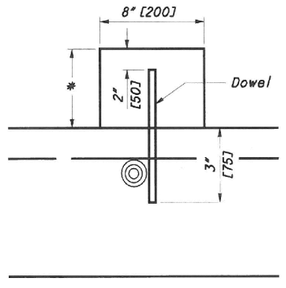
SECTION A-A

(NTS)



FLAT SLAB TOP

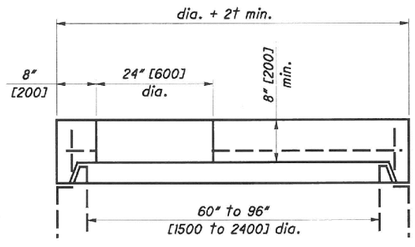
ONLY IF SPECIFIED SEE NOTE 2



* Furnish weir height as shown in plans.

DIVERSION WEIR DETAIL

(NTS)



FLAT SLAB TOP

ONLY IF SPECIFIED SEE NOTE 2

THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED. ***SEE SHEET 3OF 3 FOR CITY'S MODIFICATION NOTES.***

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
STATE HYDRAULIC ENGINEER

REVISIONS
7-20-01
7-19-02
7-15-06
7-20-06

ROADWAY HYDRAULIC ENGINEER
J. Stains

ALL METRIC DIMENSIONS (IN BRACKETS [ ]) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

OFFICE OF STRUCTURAL ENGINEERING

STANDARD HYDRAULIC CONSTRUCTION DRAWING
MANHOLE No. 3

SCD NUMBER MH-1.2

2 / 2

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_10.dwg**

REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 10

PRECAST STORM OR SANITARY MANHOLE

SHEET 2 OF 3

CANTON CONSTRUCTION STANDARDS NOTES FOR MODIFIED ODOT MANHOLE 3 (SCD MH-1.2)

NOTE 1. LIFT HOLES INSIDE THE MANHOLES MUST BE SEALED WITH GROUT.

NOTE 2. TOP AND TRANSITION SECTIONS MUST BE ECCENTRIC CONE ONLY. USE FLAT SLAB FOR SHALLOW MANHOLE APPLICATIONS OR SPECIAL CIRCUMSTANCES AS DIRECTED BY THE CITY.

NOTE 3. 6" EXTENDED BASE IS STANDARD FOR ALL SANITARY AND STORM MANHOLES. SET MANHOLE BASE ON 6" OF AASHTO M 43 NO. 56, 57, OR 62 CRUSHED STONE SET ON UNDISTURBED EARTH.

NOTE 4. PIPE CONNECTIONS INTO THE MANHOLES MUST NOT EXTEND INTO THE MANHOLE MORE THAN 2" AT THE SIDES OF THE PIPE AT THE SPRING-LINE OF SAID PIPE.

SANITARY CONNECTIONS
SANITARY SEWER PIPE INLETS, WITH FLOWLINES MORE THAN 2' HIGHER THAN THE CHANNEL BENCH MUST BE OUTSIDE DROP CONNECTIONS. DROP CONNECTIONS MUST BE FABRICATED AND CAST INTEGRALLY WITH THE MANHOLE SECTIONS OR INSTALLED PER CITY STANDARD DWG. 11, OUTSIDE DROP CONNECTION FOR SANITARY MANHOLES. NO INSIDE DROPS PERMITTED FOR PRIVATE SEWER CONNECTIONS. INSIDE DROP FOR CITY-OWNED SEWERS ARE SUBJECT TO THE CITY ENGINEER'S APPROVAL.

SANITARY PIPE INLETS MUST BE FLUMED OVER THE BENCH, DIRECTING FLOW INTO THE CHANNEL, USING CONCRETE AND/OR CLAY SEWER BRICK AND MORTAR.

CAST OPENINGS MUST BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 2 INCHES WITH A BUTYL RUBBER A-LOK, X-CEL GASKET, OR APPROVED EQUAL.

CORED OPENINGS MUST BE MACHINE CORED, THE OPENING SHALL BE PER PIPE-TO-MANHOLE CONNECTOR SPECS. USE "KOR-N-SEAL" FLEXIBLE PIPE-TO-MANHOLE CONNECTOR WITH STAINLESS WEDGE ASSEMBLY OR APPROVED EQUAL CONFORMING TO ASTM C-93O OR ASTM C-923.

STORM CONNECTION
OPENINGS FOR STORM PIPE INLETS MAY BE CAST OR MACHINE CORED. OPENINGS SHALL NOT EXCEED THE O.D. OF PIPE + 2". MAKE WATER-TIGHT JOINTS WITH NON-SHRINK CEMENT OR CLASS 'C' CONCRETE APPLIED FROM INSIDE AND OUTSIDE OF MANHOLE.

NOTE 5. STEPS SHALL BE 1/2" STEEL REINFORCED POLYPROPYLENE STEPS 12" W X 5-3/4" BY AMERICAN STEP CO., INC. OR APPROVED EQUAL, MEETING ASTM 478.

FRAMES AND COVER SHALL CONFORM WITH CITY OF CANTON STD. DWG. NO. 12.

NOTE 6. GRADE RINGS FOR NEW MANHOLES MAY BE PRECAST CONCRETE, RUBBER COMPOSITE, OR CLAY BRICK AND MORTAR. CONCRETE BRICK IS NOT PERMITTED.

HEIGHT OF GRADE RINGS COLLECTIVELY SHALL NOT EXCEED 12".

PRECAST CONCRETE GRADE RINGS MUST BE REINFORCED CLASS 'C' CONCRETE AND CONNECTED USING TWO CONCENTRIC RINGS OF 1/2" TO 1" BEADS OF BUTYL RUBBER SEALANT CON-SEAL OR APPROVED EQUAL. SEAL OUTSIDE JOINTS WITH 1/2" NON SHRINK CEMENT PLASTER.

RUBBER COMPOSITE GRADE RINGS MUST BE "INFRA-RISER" BY EJIW OR APPROVED EQUAL, AND CONNECTED USING TWO PARALLEL BEADS OF POLY-SEALANT ADHESIVE PER MANUFACTURER RECOMMENDATION. RUBBER COMPOSITE GRADE RINGS HEIGHT MUST NOT EXCEED 3" AND MUST BE PLACED DIRECTLY UNDER MANHOLE FRAME.

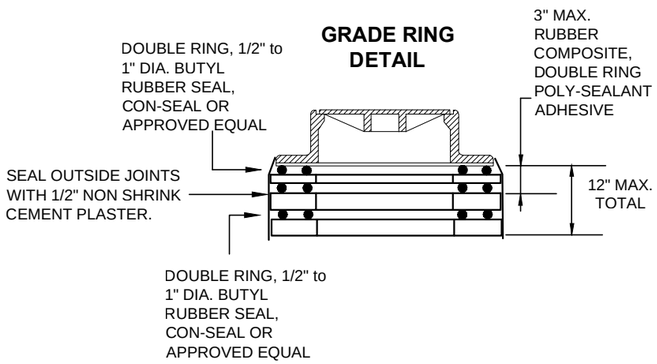
BRICK AND MORTAR RINGS MUST BE BELDEN BRICK, FINE GRIND, ASTM C32-90, OR APPROVED EQUAL WITH HIGH STRENGTH, AIR ENTRAINED, MORTAR. SEAL OUTSIDE JOINTS WITH 1/2" NON SHRINK CEMENT PLASTER.

USE TWO PARALLEL 3/4" BEADS OF BUTYL RUBBER SEALANT CON-SEAL OR APPROVED EQUAL, BETWEEN GRADE RINGS OF DIFFERENT MATERIAL AND BETWEEN GRADE RINGS AND MANHOLE FRAME.

NOTE 7. FOR BACKFILL MATERIAL AND COMPACTION, AND ROCK EXCAVATION, IF APPLICABLE, REFER TO CITY STD.DWG. NO. 19.

NOTE 8. SANITARY MANHOLES TO BE TESTED ACCORDING TO CITY ENGINEER'S SPECIFICATION 04-01 (NEGATIVE AIR PRESSURE TEST).

GRADE RING DETAIL



OPTIONAL MANHOLE BID ITEMS

ITEM	QTY.	UNIT	DESCRIPTION OPTION "A"
604		V.F.	MH WATERPROOFING, COAL TAR, A.P.P.

IF REQUESTED BY THE CITY ENGINEER, OR SPECIFIED IN THE PLAN, THE CONTRACTOR SHALL PROVIDE UNIT PRICE FOR WATERPROOFING THE EXTERIOR OF DESIGNATED MANHOLES. THIS ITEM IS "CITY OPTIONAL" AND THE PRICE IS PAID PER VERTICAL FOOT OF EACH MANHOLE WATERPROOFED AS DIRECTED BY THE ENGINEER. THIS OPTION IS A CONTINGENCY BID ITEM UNLESS SPECIFIED OTHERWISE.

APPLY IN THE FIELD A COAL TAR EPOXY TO THE OUTSIDE OF THE MANHOLE PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS FROM THE TOP OF THE EXTENDED BASE TO THE BOTTOM OF THE MANHOLE COVER CASTING.

ITEM	QTY.	UNIT	DESCRIPTION OPTION "B"
604		EACH	NEW MH, POLYMER LINING, A.P.P.
604		V.F.	EXISTING MH, POLYMER LINING, A.P.P.

IF REQUESTED BY THE CITY ENGINEER, OR SPECIFIED IN THE PLAN, THE CONTRACTOR SHALL PROVIDE UNIT PRICE FOR CORROSION RESISTANT POLYMER LININGS AS DESIGNATED. THIS ITEM IS "CITY OPTIONAL" AND THE PRICE IS PAID PER VERTICAL FOOT OR PER EACH MANHOLE LINED AS DIRECTED BY THE ENGINEER. THE UNIT COST FOR THIS ITEM INCLUDES ALL COSTS FOR LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED FOR SUPPLYING AND INSTALLING THE LININGS INCLUDING THE COST FOR BYPASSING EXISTING SEWER FLOWS FOR THE DURATION OF THE INSTALLATION AND CURING TIME AS SPECIFIED. THIS OPTION IS INCLUDED AS A CONTINGENCY BID ITEM. UNLESS SPECIFIED OTHERWISE.

APPLY IN THE FIELD A CORROSION RESISTANT POLYMER LINING (PLASITE 5371 BY CARBOLINE OR APPROVED EQUAL) TO THE INSIDE OF THE NEW OR EXISTING MANHOLE PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS. APPLY FROM THE TOP OF THE BENCH TO THE BOTTOM OF THE MANHOLE COVER CASTING.

FOR EXISTING MANHOLES, PRIOR TO POLYMER LINING APPLICATION, RESTORE INSIDE WALLS AS PER LINING MANUFACTURERER'S RECOMMENDATIONS OR AS DIRECTED BY THE CITY ENGINEER.

THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED.

OFFICE OF THE CITY ENGINEER
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APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_10.dwg**

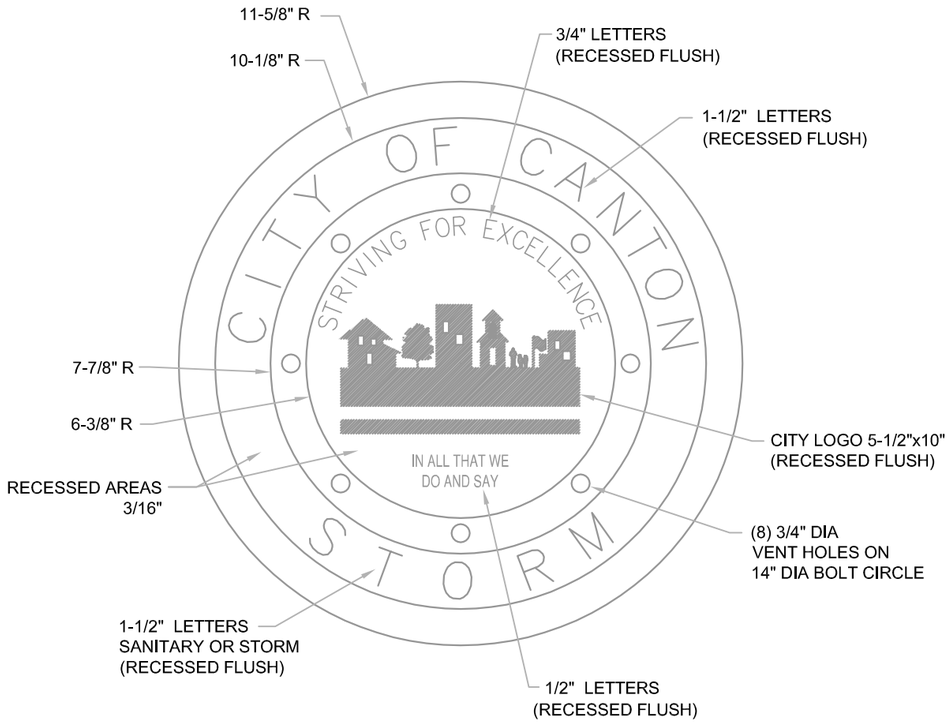
REVISIONS

DESCRIPTION	DATE	BY

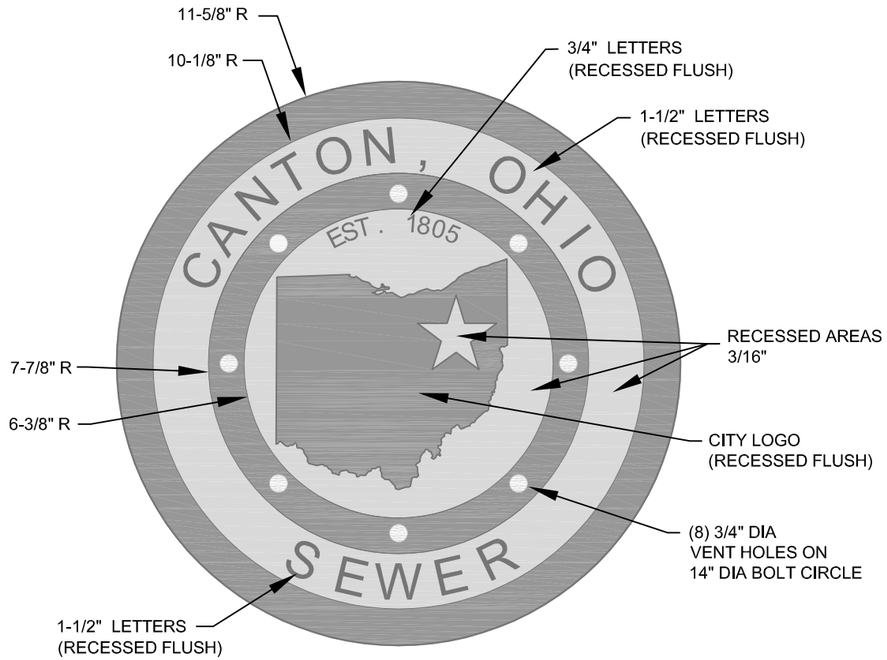
STANDARD DRAWING NO. 10

PRECAST STORM OR SANITARY MANHOLE

TOP OF MANHOLE COVER (OLD)
(prior to 2014)



TOP OF MANHOLE COVER (NEW)
(2014 Projects and Forward)



NOTES:

1. COVER AND FRAME TO BE CAST OF GRAY IRON IN COMPLIANCE WITH ASTM SPEC. ASTM A-48 CLASS 35. CASTINGS SHALL BE OF THE HEAVY DUTY RATING.
2. EAST JORDAN 1850 B COVER (PRODUCT NO. 185026) AND 1850 FRAME, OR NEENAH R-1654 FRAME AND LID, OR EQUAL APPROVED BY CITY ENGINEER.
3. MACHINE BEARING SURFACES BETWEEN LID AND FRAME.
4. CONTACT CITY ENGINEER FOR CAD DRAWING OF CITY LOGO.
5. CONTRACTORS/SUPPLIER MAY USE COVERS IN STOCK WITH OLD CITY LOGO AS PERMITTED BY THE CITY ENGINEER. OTHERWISE, PROJECTS MUST USE COVERS WITH NEW LOGO.

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APPROVED DATE: JAN 2012

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DRAWING FILE NAME: **ce_12.dwg**

REVISIONS

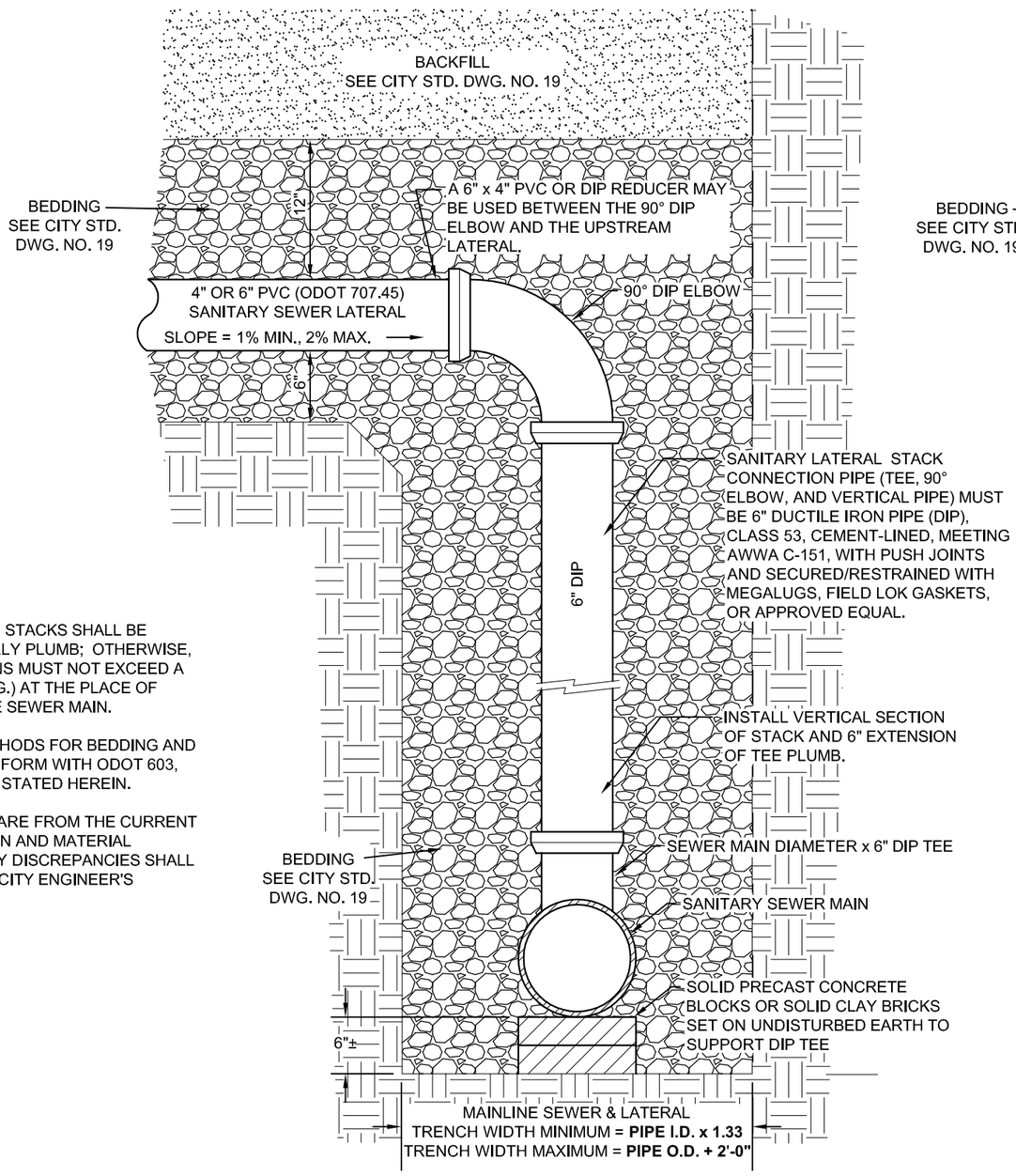
DESCRIPTION	DATE	BY
MH COVER CITYLOGO	2/28/2014	RMB

STANDARD DRAWING NO. 12

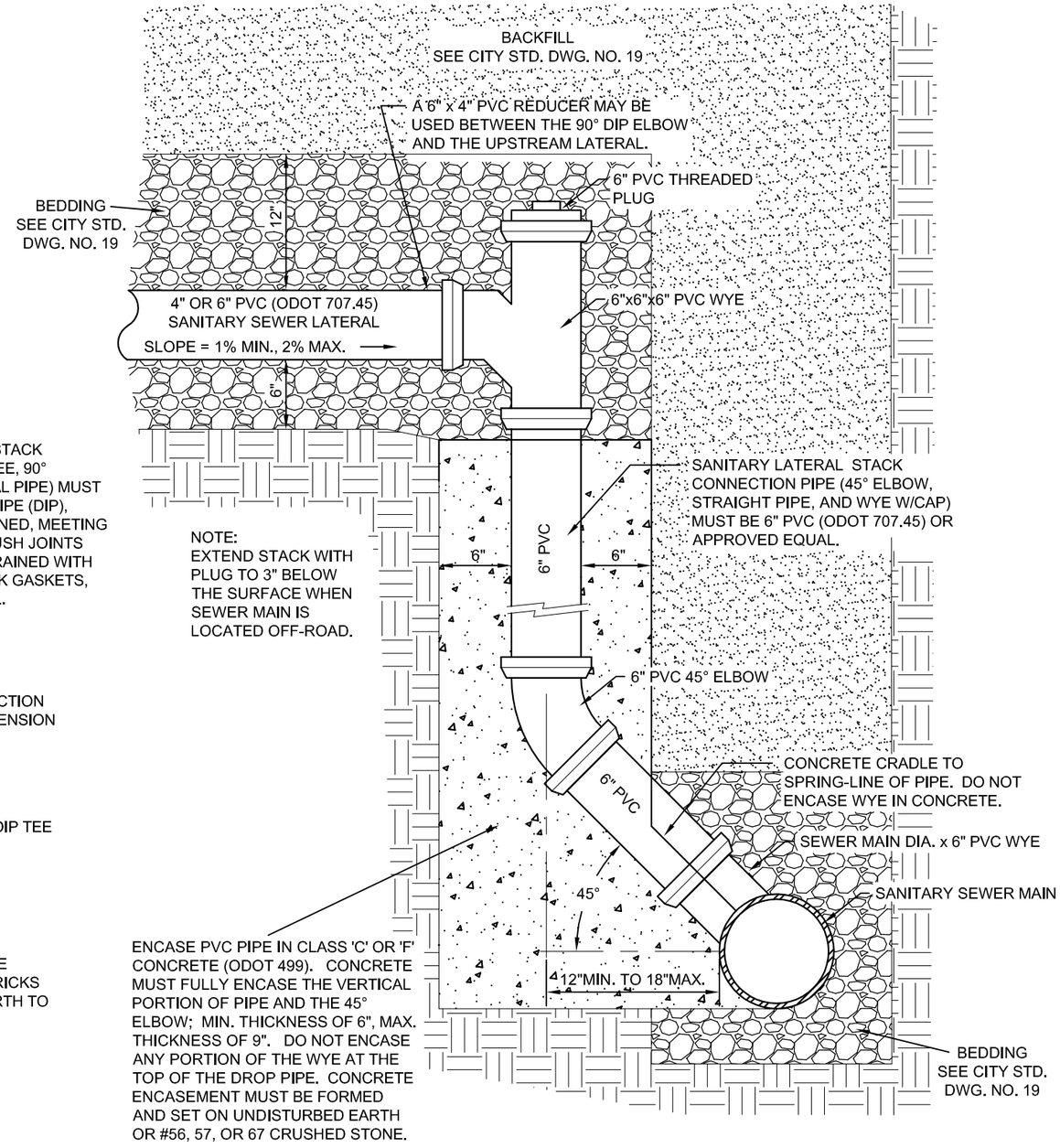
MANHOLE COVER

SHEET 1 OF 1

HOUSE CONNECTION STACK, OPTION 1



HOUSE CONNECTION STACK, OPTION 2



NOTES:

1. HOUSE CONNECTION STACKS SHALL BE INSTALLED VERTICALLY PLUMB; OTHERWISE, SEWER CONNECTIONS MUST NOT EXCEED A SLOPE OF 1:1 (45 DEG.) AT THE PLACE OF CONNECTION TO THE SEWER MAIN.

2. CONSTRUCTION METHODS FOR BEDDING AND BACKFILL SHALL CONFORM WITH ODOT 603, UNLESS OTHERWISE STATED HEREIN.

3. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

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APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_18.dwg**

REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 18

HOUSE CONNECTION STACK

NOTES:

1. **BEDDING:**

MATERIALS SHALL BE AASHTO M 43 NO. 56, 57, OR 67 CRUSHED STONE. NO ALTERNATES UNLESS APPROVED BY THE CITY ENGINEER. PRIVATE UTILITIES MAY TYPICALLY PROVIDE ALTERNATIVE BEDDING MATERIAL AS APPROVED BY THE CITY ENGINEER.

BEDDING WIDTH TABLE

PIPE TYPE	MIN. WIDTH, TYP.	MAX. WIDTH, TYP.
NON-RIGID PIPE (PVC, HDPE, CMP, ALUMINUM)	**PIPE I.D. x 1.25 + 1'-0"**	**PIPE O.D. + 2'-0"**
RIGID PIPE (CONC., VIT. CLAY, DUCTILE IRON)	**PIPE I.D. x 1.33**	**PIPE O.D. + 2'-0"**

CENTER PIPE HORIZONTALLY WITHIN BEDDING AREA. ANY DEVIATION TO TYPICAL BEDDING REQUIREMENTS ARE SUBJECT TO THE DISCRETION OF THE CITY ENGINEER.

THE BEDDING LIMITS SHOWN APPLY IN ALL CASES *EXCEPT* FOR WHEN PIPE MANUFACTURER SPECIFIES A BEDDING WIDTH DIFFERENT FROM THAT SHOWN AND THE CITY ENGINEER PERMITS SAME.

2. **BACKFILL:**

BACKFILL WITHIN THE PUBLIC STREET R/W:

MATERIALS SHALL BE ODOT 703.11, TYPE '1' GRANULAR MATERIAL (304, 411, or 617 AGGREGATE GRADATION) OR TYPE '2' GRANULAR MATERIAL, OR ODOT 613, LOW STRENGTH MORTAR; DEVIATIONS FROM THIS ARE AS FOLLOWS:

A) NO FOUNDRY SAND OR SLAG IS PERMITTED.

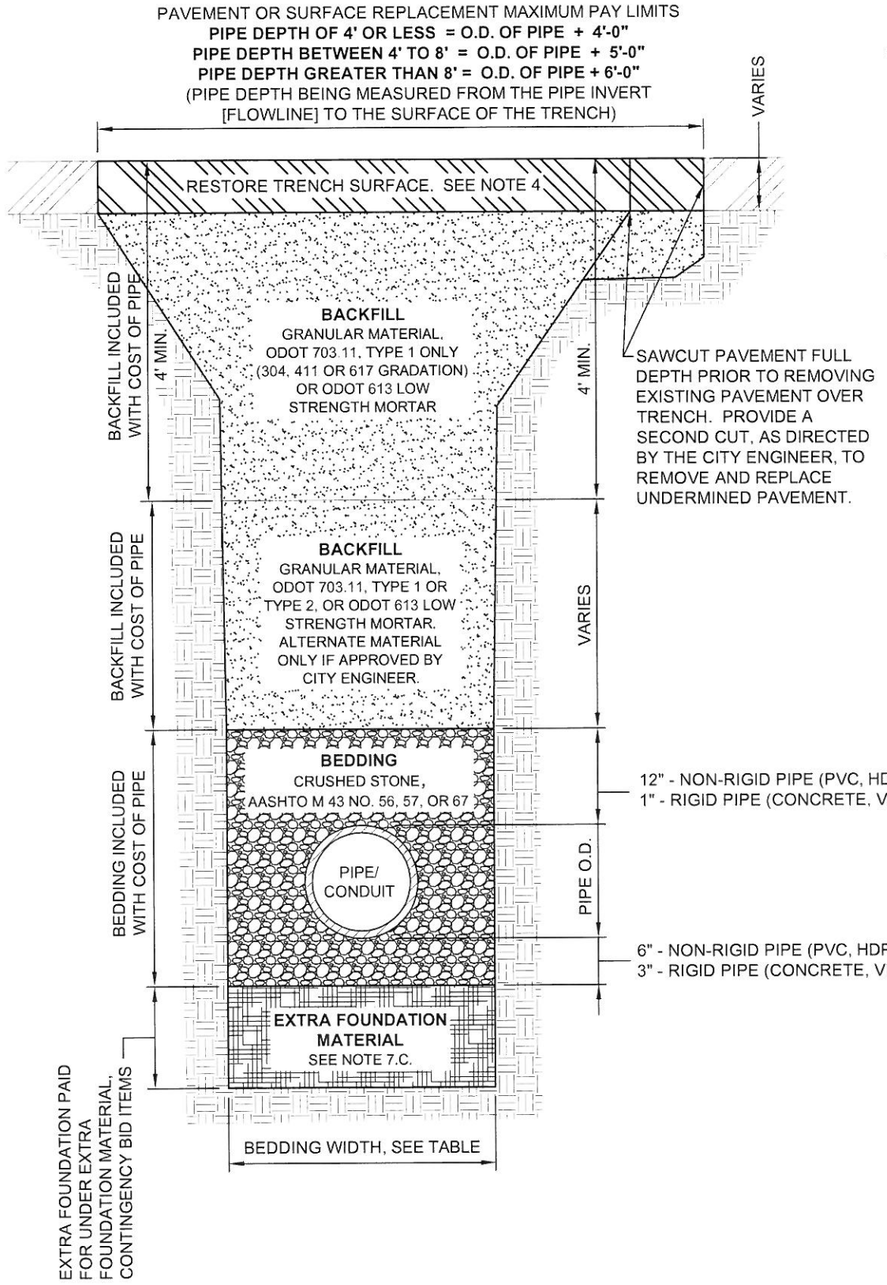
B) ALTERNATE GRANULAR MATERIAL SHALL BE PERMITTED ONLY WITH THE SUPPLEMENTAL APPROVAL OF THE CITY ENGINEER. TO PETITION FOR SUCH SUPPLEMENTAL APPROVAL, THE DEVELOPER/CONTRACTOR SHALL SUBMIT IN WRITING THE FOLLOWING:
   * SOURCE OF THE ALTERNATE BACKFILL MATERIAL.
   * GRADATION REPORT IN ACCORDANCE WITH AASHTO T II AND T 27.
   * PROCTOR CURVE ANALYSIS IN ACCORDANCE WITH ASTM D 698.
   * PROPOSED COMPACTION METHOD.

   THE CITY ENGINEER RESERVES THE RIGHT TO REFUSE ANY ALTERNATE BACKFILL MATERIAL, REGARDLESS OF APPROVAL OF SIMILAR MATERIAL ON A PREVIOUS PROJECT.

   THE CITY ENGINEER FURTHER RESERVES THE RIGHT TO REFUSE ANY ALTERNATE BACKFILL MATERIAL THE CITY FINDS NOT CONSISTENT WITH THE APPROVED SOURCE, GRADATION REPORT, PROCTOR REPORT, OR COMPACTION METHOD.

C) ODOT 703.11, TYPE 2, OR ALTERNATE MATERIALS ARE NOT PERMITTED WITHIN 4 FEET OF THE TRENCH SURFACE, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

BACKFILL OUTSIDE OF THE PUBLIC STREET R/W:
FOLLOW MATERIAL AND METHODS FOR BACKFILL IN ACCORDANCE WITH ODOT 603.



NOTES: (CONTINUED)

3. **COMPACTION:**

ALL BACKFILL SHALL BE PLACED IN LAYERS NOT TO EXCEED 12-INCHES LOOSE DEPTH AND COMPACTED BY APPROVED MECHANICAL MEANS. JETTING IS NOT APPROVED WITHOUT THE CITY ENGINEER'S APPROVAL. BUCKET COMPACTION MUST BE SUPPLEMENTED WITH VIBRATION OR TAMPING EQUIPMENT AS DIRECTED. ANY MODIFICATIONS TO THESE REQUIREMENTS MUST BE APPROVED BY THE CITY ENGINEER.

4. **SURFACE:**

TRENCHES SHALL BE TOPPED WITH 4" OF ODOT 304 LIMESTONE OR ASPHALT GRINDINGS WITHIN EXISTING STREET PAVEMENTS WHEN THE STREET WILL BE OPENED TO VEHICULAR TRAFFIC PRIOR TO PAVEMENT REPLACEMENT. THE TRENCH TOPPING MATERIAL SHALL BE ROLLED OR OTHERWISE COMPLETED FLUSH WITH THE ADJOINING PAVEMENT.

STREET RESTORATION:
CONCRETE OR ASPHALT STREET PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH **CITY STD. DWG. NO. 32**. BRICK OR ASPHALT-BRICK COMPOSITE STREET PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH **CITY STD. DWG. NO. 31**.

SIDEWALK, CURB, AND DRIVEWAY RESTORATION:
DRIVEWAY SURFACES SHALL BE REPLACED IN ACCORDANCE WITH THE **CURRENT EDITION OF THE CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS**; AND CITY STD. DWG. NOS. 28 THRU 33.

LAWN RESTORATION:
LAWN SURFACES SHALL BE REPLACED WITH A MINIMUM OF 4" TOPSOIL, SEEDED, AND MULCHED. SEED MIX SHALL CONFORM TO ADJOINING LAWN GRASS.

5. **CONSTRUCTION METHODS** FOR BEDDING AND BACKFILL SHALL CONFORM WITH ODOT 603, UNLESS STATED OTHERWISE HEREIN.

6. **ODOT REFERENCES** ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

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APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_19.dwg**

REVISIONS

DESCRIPTION	DATE	BY
REVISIONS TO NOTES 7 & 8	6/4/2012	CDB
REVISIONS TO NOTES 7	6/10/2013	CDB

STANDARD DRAWING NO. 19
UTILITY TRENCH REQUIREMENTS

NOTES: (CONTINUED)

7. PAY LIMITS FOR CITY PROJECTS

A) **BEDDING AND BACKFILL** IS INCLUDED WITH THE COST OF PIPE UNLESS DIRECTED TO BID OTHERWISE.

B) **PAVEMENT RESTORATION** IS INCLUDED WITH THE COST OF PIPE UNLESS A SEPARATE PAY ITEM IS PROVIDED, WHEREBY THE WIDTH MEASUREMENT OVER THE TRENCH FOR PAVEMENT RESTORATION SHALL NOT EXCEED THE OUTSIDE DIAMETER (O.D.) OF PIPE PLUS A SET MEASUREMENT DEPENDENT ON DEPTH OF PIPE. AREA MEASUREMENTS AT MANHOLE AND CATCH BASIN STRUCTURES SHALL NOT EXCEED THE AREA OF THE BASE OF THE STRUCTURE + 3'-0" OFFSET AREA AROUND THE STRUCTURE'S BASE.

C) **EXTRA FOUNDATION MATERIAL**: THE CONTRACTOR SHALL BE PAID FOR OVER-EXCAVATION AND BEDDING FOUNDATION MATERIAL UNDER THE CONTINGENCY BID ITEMS FOR EXTRA FOUNDATION MATERIAL.

WHEN IN THE OPINION OF THE CITY ENGINEER, SOFT/UNSTABLE MATERIALS ARE ENCOUNTERED WHICH ARE UNSUITABLE FOR BEDDING FOUNDATION, SAID MATERIAL SHALL BE REMOVED BY THE CONTRACTOR TO THE DEPTH DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE MATERIAL.

FOR CITY PROJECTS, THE PAYABLE WIDTH OF THE EXTRA FOUNDATION MATERIAL SHALL NOT EXCEED THE LESSER OF THE APPLICABLE MINIMUM OR MAXIMUM TYPICAL BEDDING WIDTH, AS NOTED ON SHEET 1 OF STD. DWG. NO. 19.

FOR PRIVATE WORK, ALL COSTS ARE AT THE OWNER'S EXPENSE.

EXTRA FOUNDATION MATERIAL, OPTION A, B, C, & D, MAY BE USED IN ANY COMBINATION AS DIRECTED BY THE CITY ENGINEER:

OPTION A: CRUSHED STONE, AASHTO M 43 NO. 1 AND/OR 2

OPTION B: CRUSHED STONE, AASHTO M 43 NO. 56, 57, OR 67

OPTION C: ODOT 703.11, TYPE 1 (304, 411 OR 617 GRADATION)

OPTION D: TENSAR GEOGRID T1100, OR APPROVED EQUAL

EXTRA FOUNDATION MATERIAL, CONTINGENCY BID ITEMS

ITEM	QTY.	UNIT	DESCRIPTION
603		C.Y.	EXTRA FOUNDATION, OPTION A (#1,#2 STONE)
603		C.Y.	EXTRA FOUNDATION, OPTION B (#56,57,67 STONE)
603		C.Y.	EXTRA FOUNDATION, OPTION C (304,411,617)
603		S.F.	EXTRA FOUNDATION, OPTION D (GEOGRID)

NOTES: (CONTINUED)

8. EXCAVATION OF ROCK OR BURIED/ABANDONED CONCRETE STRUCTURE REMOVAL

EXCAVATION FOR NEW MANHOLES AND CATCH BASINS, UNLESS OTHERWISE SPECIFIED OR SHOWN ON CONSTRUCTION PLANS, SHALL BE MEASURED BETWEEN VERTICAL PLANES ONE (1) FOOT BEYOND THE OUTSIDE EDGE OF THE FOUNDATION OF THE STRUCTURES ON ALL SIDES, AND PARALLEL THERETO, AND FROM THE SURFACE OF THE ROCK TO THE BOTTOM OF THE ROCK OR THE NEAT LINES OF THE BOTTOM OF THE STRUCTURES PLUS THE DEPTH OF THE BASE MATERIAL, USE THE MEASUREMENT WHICH IS LESSER.

EXCAVATION FOR NEW PIPES, UNLESS OTHERWISE SPECIFIED OR SHOWN ON CONSTRUCTION PLANS, SHALL BE MEASURED BETWEEN TRENCH WALLS (NOT TO EXCEED PIPE O.D. + 18", AND FROM THE SURFACE OF THE ROCK TO THE BOTTOM OF THE ROCK OR THE BOTTOM OF THE PIPE BEDDING, USE THE MEASUREMENT WHICH IS LESSER.

EXCAVATION OF BURIED AND ABANDONED CONCRETE STRUCTURES SHALL BE MEASURED IN THE SAME MANNER AS ROCK REMOVAL.

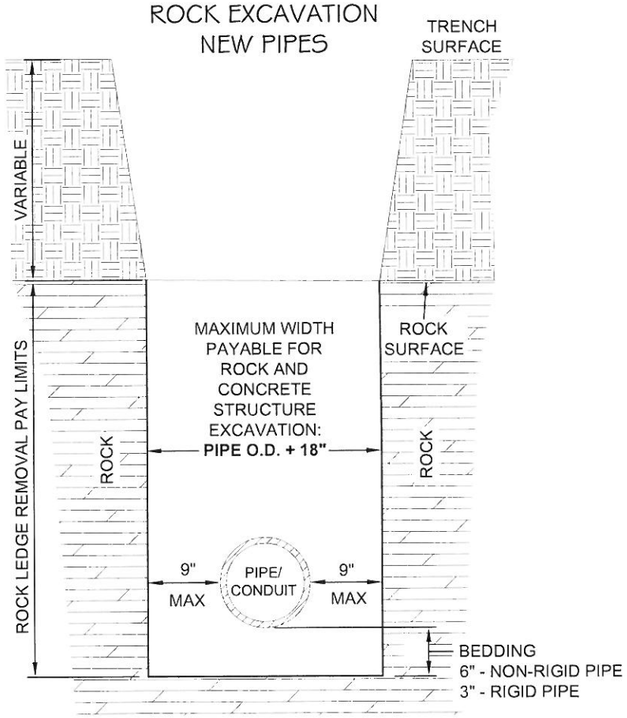
FOR CITY PROJECTS, THE CONTRACTOR SHALL BE PAID FOR ROCK REMOVAL AND CONCRETE STRUCTURE REMOVAL UNDER THE CONTINGENCY BID ITEMS FOR ROCK OR CONCRETE STRUCTURE REMOVAL. IF A CONTINGENCY BID ITEM IS NOT INCLUDED IN THE BID PROPOSAL, THE CONTACTOR MAY SUBMIT A PROPOSAL (PRIOR TO WORK BEING STARTED) TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.

FOR PRIVATE WORK, ALL COSTS ARE AT THE OWNER'S EXPENSE.

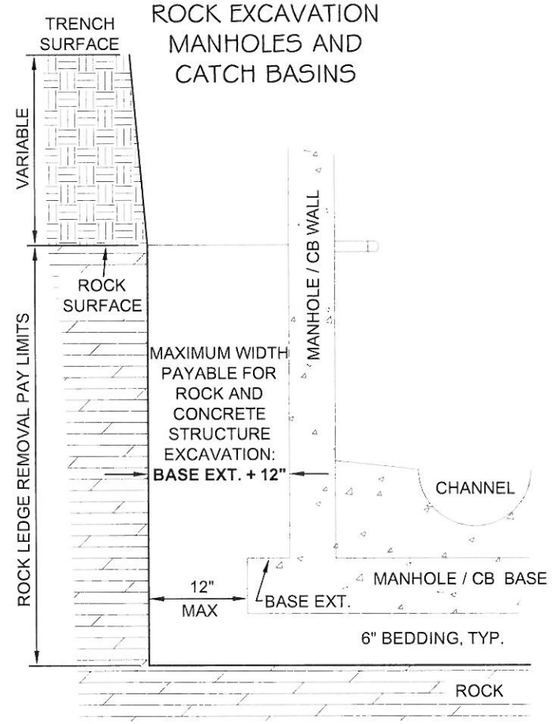
ROCK AND BURIED & ABANDONED CONCRETE STRUCTURE REMOVAL, CONTINGENCY BID ITEMS

ITEM	QTY.	UNIT	DESCRIPTION
603		C.Y.	ROCK REMOVAL
603		C.Y.	CONCRETE STRUCTURE REMOVAL

ROCK EXCAVATION NEW PIPES



ROCK EXCAVATION MANHOLES AND CATCH BASINS



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APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

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REVISIONS

DESCRIPTION	DATE	BY
REVISIONS TO NOTES 7 & 8	6/4/2012	CDB
REVISIONS TO NOTES 7	6/10/2013	CDB

STANDARD DRAWING NO. 19

UTILITY TRENCH REQUIREMENTS

CLASS "F" CONCRETE ENCASEMENT - 3,000 PSI TYP.

NOT TO SCALE

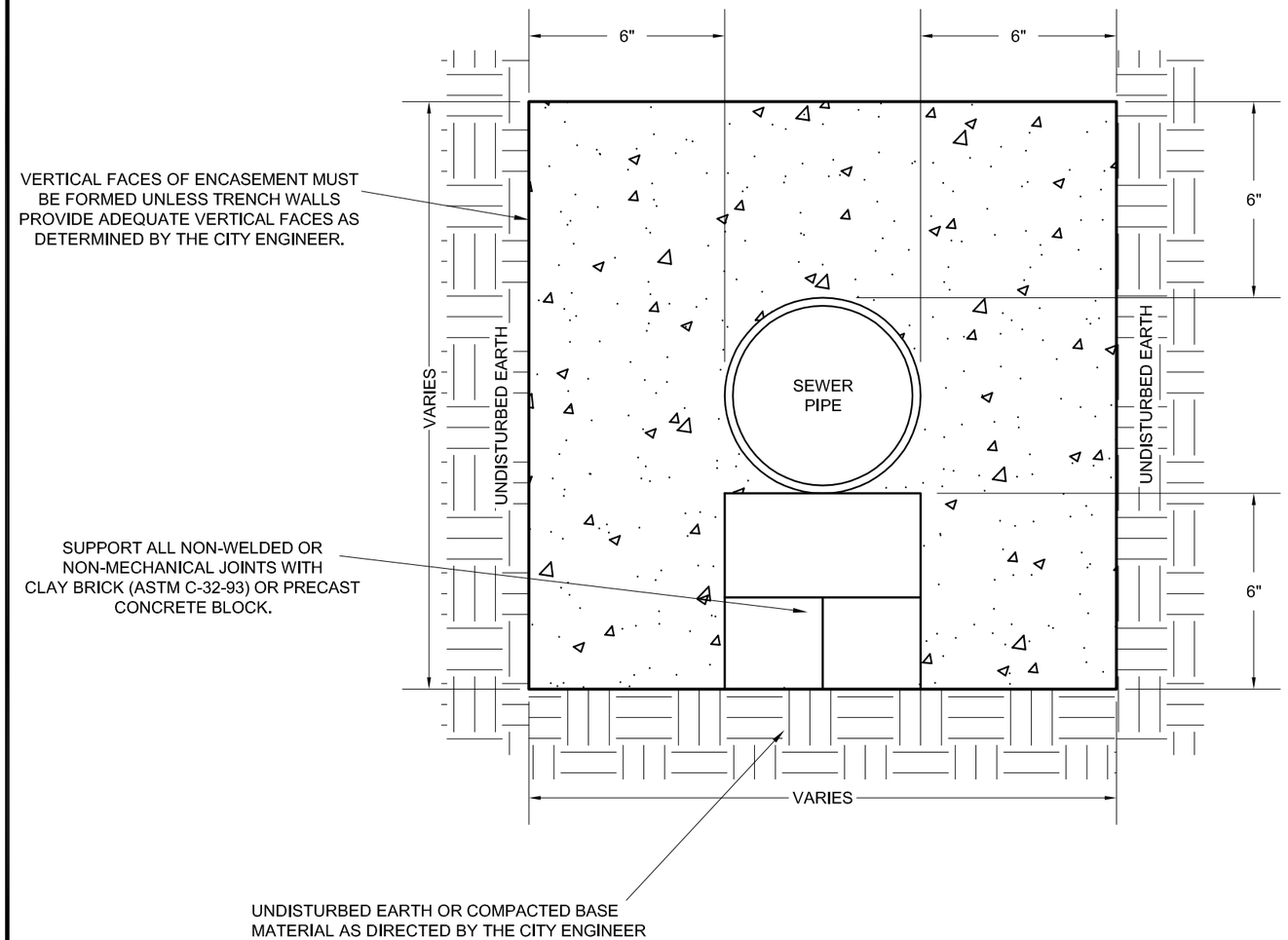

TABLE SHOWS QUANTITIES TYPICAL FOR COMPLETE ENCASEMENT AS SHOWN IN DRAWING.

PIPE DIAMETER (INCHES)	CONCRETE PER LINEAR FOOT OF ENCASEMENT (CUBIC YARDS)
6	0.08
8	0.10
10	0.12
12	0.13
15	0.16
18	0.19
21	0.22
24	0.25
27	0.29

NOTES:

1. CONCRETE ENCASEMENT SHALL APPLY AS SPECIFIED IN APPLICABLE PLANS OR AS OTHERWISE DIRECTED BY THE CITY ENGINEER.
2. SANITARY SEWER MAINS AND LATERALS ARE TO BE ENCASED IF THEY ARE WITHIN 18" VERTICALLY OF WATER LINES.
3. STORM SEWER MAINS AND LATERALS ARE TO BE ENCASED IF THEY ARE WITHIN 12" VERTICALLY OF WATER LINES.
4. ALL CONCRETE SHALL CONFORM TO ODOT ITEM 499 CLASS F (3,000 psi).
5. BOTTOM OF TRENCH SHALL BE FREE OF STANDING WATER BEFORE PLACING CONCRETE.
6. ENCASEMENT OF STORM/SANITARY SEWER IS TO EXTEND FOR A LENGTH OF 2 FEET ON EACH SIDE OF THE WATER LINE. PROVIDE A BOND BREAK BARRIER BETWEEN ENCASEMENT AND OTHER PIPES OR CONDUITS AS DIRECTED BY THE ENGINEER.
7. ALTERNATIVE ENCASEMENT OPTIONS MAY BE ACCEPTED OR REQUIRED BY THE CITY ENGINEER.

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APPROVED BY: CDB, RMB, SLH

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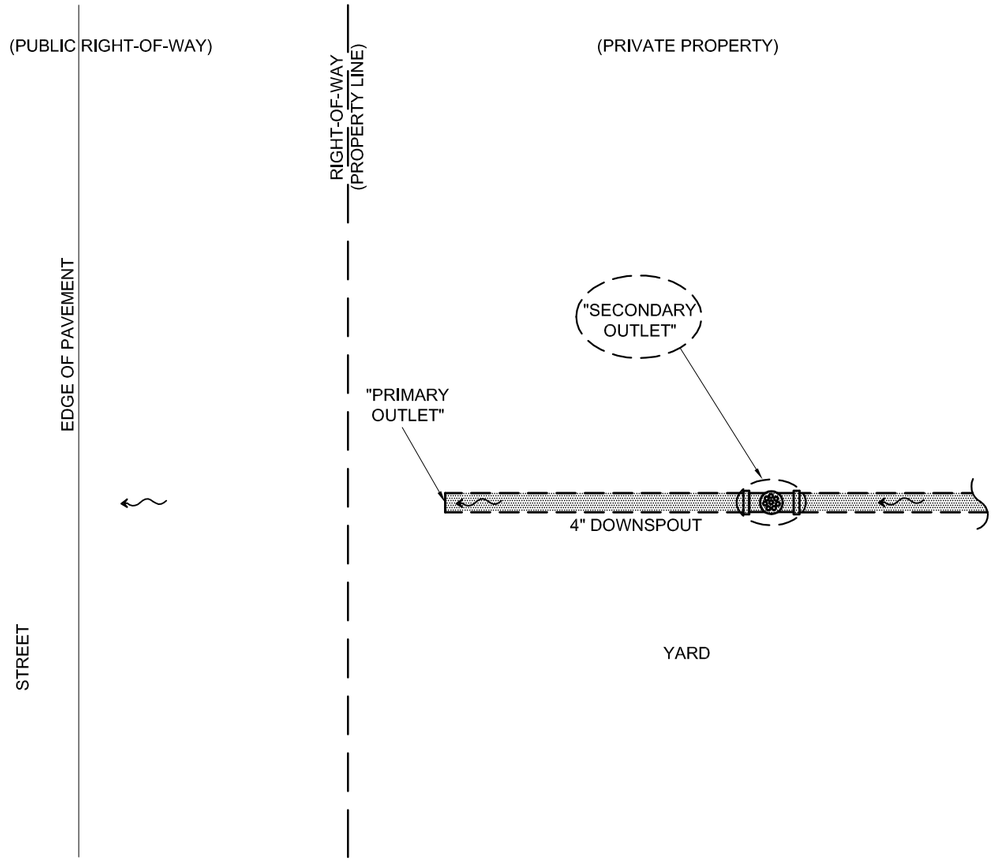
REVISIONS

DESCRIPTION	DATE	BY

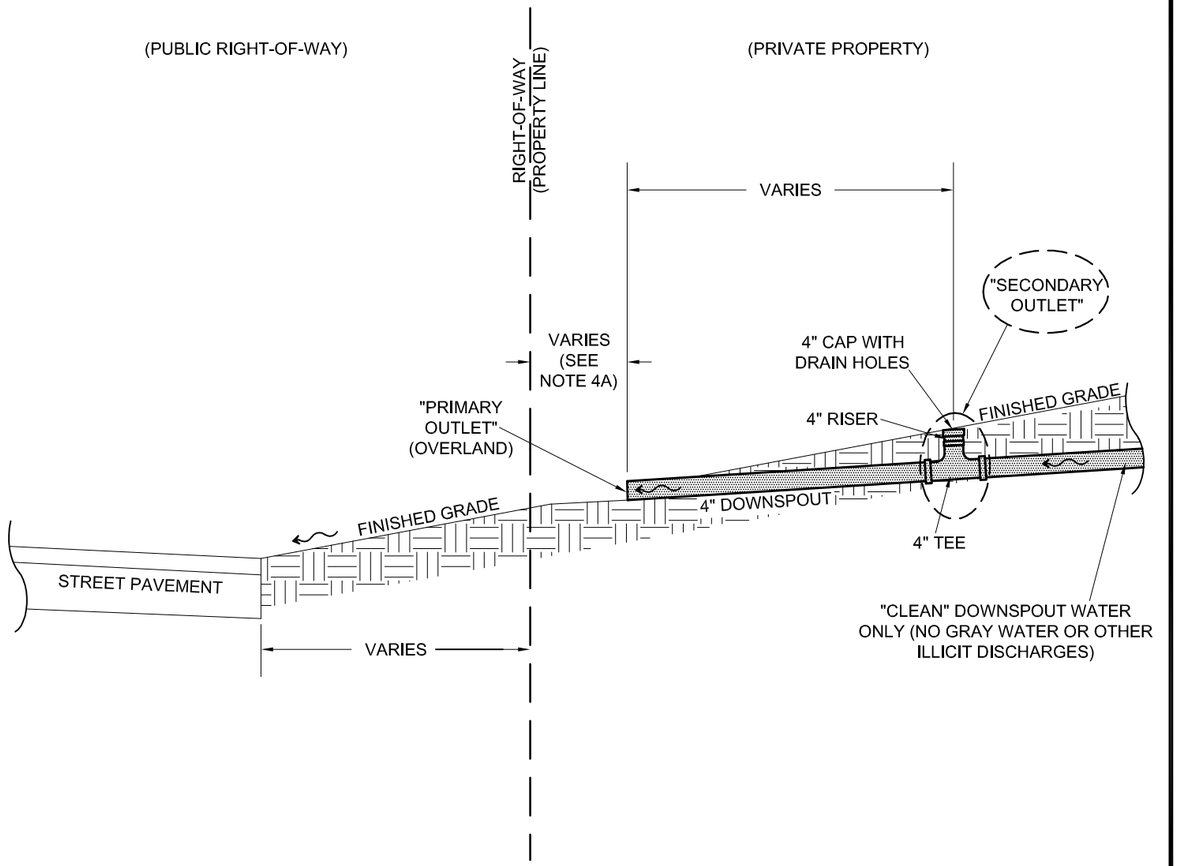
STANDARD DRAWING NO. 21
CONCRETE ENCASEMENT DETAIL

SHEET 1 OF 1

PLAN VIEW
NOT TO SCALE



PROFILE VIEW
NOT TO SCALE



NOTES:

1. THE CONFIGURATION SHOWN IS RECOMMENDED FOR TYPICAL 4" RESIDENTIAL DOWNSPOUTS THAT ARE DIRECTED TO DISCHARGE TOWARD NON-CURBED PUBLIC CITY STREETS.
2. ALL PIPE AND COMPONENTS OF DOWNSPOUT TO BE LOCATED OUTSIDE OF RIGHT-OF-WAY, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. ALL PIPE AND COMPONENTS OF DOWNSPOUT SYSTEM ARE PRIVATELY OWNED AND MAINTAINED.
4. THE FOLLOWING DISCHARGE CONDITIONS APPLY:
   A. DOWNSPOUT SHALL NOT DIRECTLY DISCHARGE OVER ANY PUBLIC SIDEWALK OF THE CITY (REF. CODIFIED ORDINANCE 1335.01) OR ONTO A SIDEWALK, STREET, OR PUBLIC GROUND WITHIN THE CITY, WHEN IN THE OPINION OF THE CITY ENGINEER A PUBLIC NUISANCE IS CAUSED BY DOING SO (REF. CODIFIED ORDINANCE 903.02); A MINIMUM 10' SETBACK IS RECOMMENDED BETWEEN BACK OF SIDWALK AND DOWNSPOUT OUTLET, AS APPLICABLE.
   B. DISCHARGE SHALL NOT CONTAIN ANY GRAY WATER OR OTHER ILLICIT DISCHARGES;
   C. DOWNSPOUTS SHALL NOT BE CONNECTED TO A SANITARY SEWER.
5. A "STREET OPENING PERMIT" IS REQUIRED FROM THE ENGINEERING DEPARTMENT FOR ANY EXCAVATION WITHIN CITY RIGHT-OF-WAY OR OTHER CITY-OWNED PROPERTY (REF. CODIFIED ORDINANCE CHAPTER 909);
6. A "SEWER CONNECTION PERMIT" IS REQUIRED FROM THE ENGINEERING DEPARTMENT FOR ANY DIRECT OR INDIRECT CONNECTION OF A PIPE TO A CITY-OWNED STORM SEWER, CATCH BASIN, OR MANHOLE.
7. MODIFICATIONS TO THE CONFIGURATION SHOWN MAY BE ALLOWED OR REQUIRED BY THE CITY ENGINEER.
8. FOR DOWNSPOUTS THAT ARE DIRECTED TO DISCHARGE TOWARD A CITY STREET WITH CURB, SEE CITY STANDARD DRAWING NO. 23.
9. FOR DOWNSPOUTS THAT CONTAIN GROUNDWATER DISCHARGES (FROM SUMP PUMPS OR GRAVITY FLOW):
   A. PRIMARY OUTLET SHOULD BE DIRECTLY CONNECTED TO CATCH BASIN, MANHOLE, OR DITCH, IF POSSIBLE, IN LIEU OF OVERLAND DISCHARGE SHOWN. DIRECT CONNECTION TO CATCH BASIN OR MANHOLE SHALL BE BY AN APPROVED CORE-AND-SEAL BOOT. APPROPRIATE PERMITS MUST BE OBTAINED FROM THE CITY ENGINEERING DEPARTMENT AND THE WORK MUST BE INSPECTED.
   B. IF CATCH BASIN, MANHOLE, OR DITCH IS UNAVAILABLE BUT STORM SEWER IS AVAILABLE FOR DOWNSPOUT PRIMARY OUTLET DIRECT CONNECTION, CONSTRUCT DOWNSPOUT OUTLET IN ACCORDANCE WITH CITY STANDARD DRAWING NO. 24.
   C. IF NO CATCH BASIN, MANHOLE, DITCH, OR STORM SEWER IS AVAILABLE FOR DIRECT CONNECTION, DOWNSPOUT OUTLET MAY BE CONSTRUCTED PER THIS DRAWING CONTINGENT UPON SATISFYING ALL STATED DISCHARGE CONDITIONS.
10. ADDITIONAL RECOMMENDATIONS:
    A. CONSTRUCT A SECONDARY OUTLET (SHOWN) CONSISTING OF A 4" TEE, 4" RISER, AND 4" CAP WITH DRAIN HOLES AS AN OVERFLOW IN CASE THE PRIMARY OUTLET BECOMES BLOCKED OR FAILS.
    B. ENSURE CONTINUOUS POSITIVE FLOW AWAY FROM STRUCTURES;
    C. THE DISCHARGE SHOULD BE IN A MOST REASONABLE MANNER AS POSSIBLE SO AS TO NOT PROMOTE ADVERSE FLOODING, EROSION, OR RELATED NUISANCE ON PRIVATE PROPERTIES;
    D. FOLLOW APPLICABLE BUILDING CODE REQUIREMENTS.

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APPROVED DATE: MAR. 2012

APPROVED BY: CDB, RMB

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REVISIONS

DESCRIPTION	DATE	BY

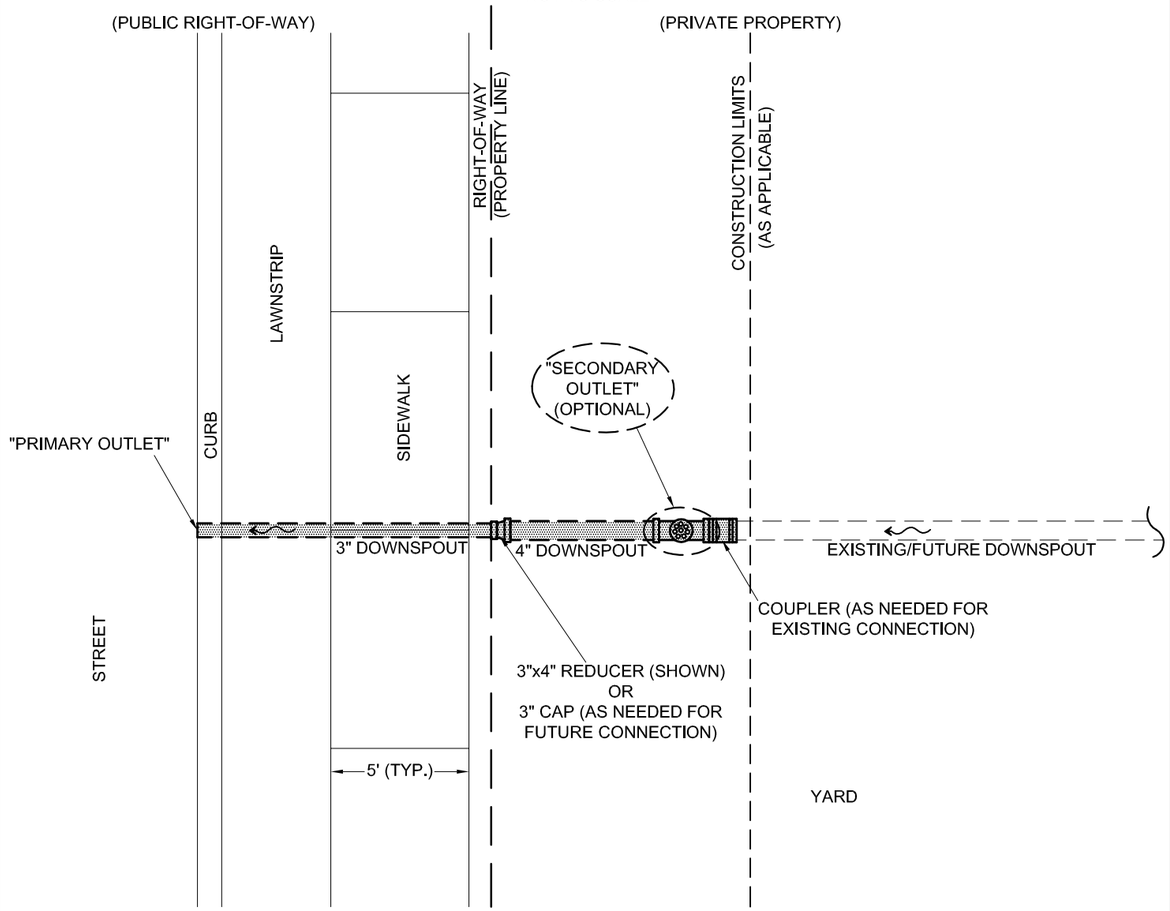
STANDARD DRAWING NO. 22

DOWNSPOUT OUTLET
(NON-CURBED STREET)

SHEET 1 OF 1

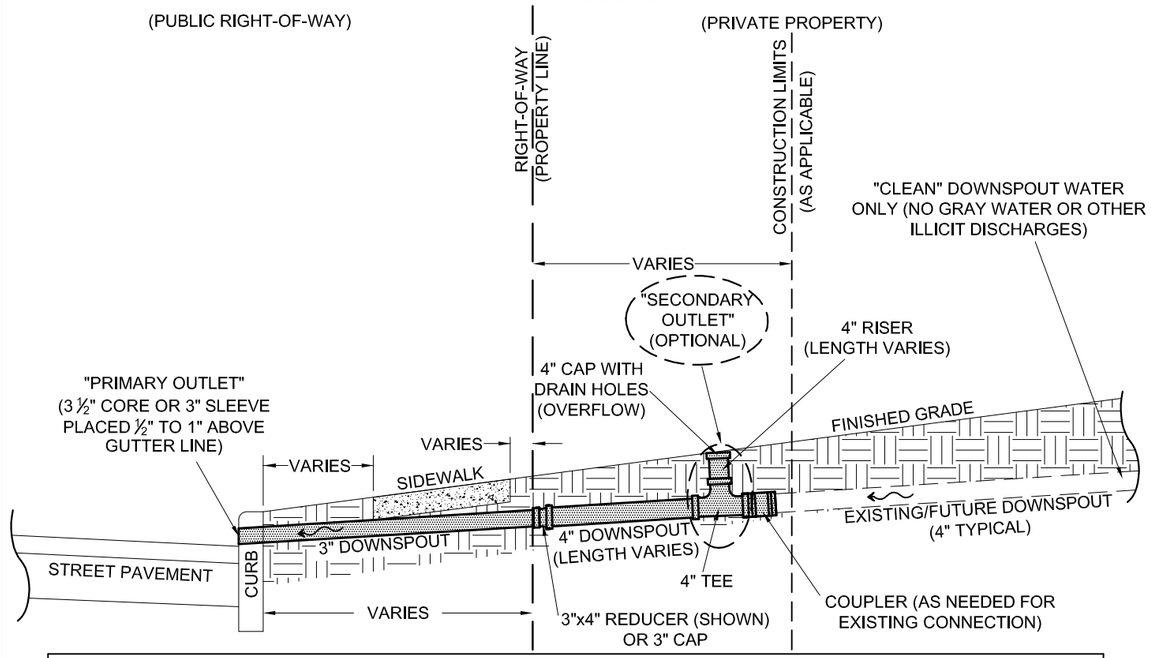
PLAN VIEW

NOT TO SCALE



PROFILE VIEW

NOT TO SCALE



ITEMS, MATERIALS, AND QUANTITIES PER RESIDENTIAL DOWNSPOUT OUTLET

ITEM	MATERIAL TYPE	QUANTITY	UNIT
3" DOWNSPOUT	PVC SCH. 40 (707.43 OR 707.45)	VARIES	FT.
3" CAP (AS NEEDED)	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
3"x4" REDUCER (AS NEEDED)	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
4" DOWNSPOUT (AS NEEDED)	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	VARIES	FT.
4" TEE (OPTIONAL), CONTINGENCY	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
4" RISER (OPTIONAL), CONTINGENCY	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	VARIES	FT.
4" CAP WITH DRAIN HOLES (OPTIONAL), CONTINGENCY	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
COUPLER (AS NEEDED)	NEOPRENE WITH STAINLESS STEEL CLAMPS	1	EACH

NOTES:

1. FOR CITY PROJECTS: WHERE THERE ARE EXISTING DOWNSPOUTS WITHIN CONSTRUCTION LIMITS, CONTRACTOR SHALL INSTALL 3" DOWNSPOUT WITHIN PUBLIC RIGHT-OF-WAY AS DIRECTED OR AS INDICATED ON PLANS. AS NEEDED, CONTRACTOR SHALL INSTALL A 3"x4" REDUCER, 4" DOWNSPOUT, AND COUPLER TO CONNECT TO EXISTING DOWNSPOUTS. THE SECONDARY OUTLET (TEE, RISER, 4" CAP WITH HOLES) IS OPTIONAL AND SHALL BE CONSTRUCTED ONLY AS DIRECTED. IF DOWNSPOUT CONTAINS GROUNDWATER FLOWS, SEE NOTE 11. APPROPRIATE QUANTITIES, PAY ITEMS, AND NOTES SHALL BE PROVIDED ON THE CONSTRUCTION PLANS.
2. FOR NEW SUBDIVISIONS AND PRIVATE WORK: HOMEOWNER/BUILDER IS RESPONSIBLE FOR CONSTRUCTING DOWNSPOUT OUTLET. THE 3" DOWNSPOUT WITHIN PUBLIC RIGHT-OF-WAY IS REQUIRED WHERE APPLICABLE. THE CONFIGURATION, ITEMS, AND MATERIALS SHOWN OUTSIDE OF THE RIGHT-OF-WAY ARE RECOMMENDED UNLESS OTHERWISE REQUIRED BY THE CITY ENGINEER AS A CONDITION FOR ISSUING APPLICABLE PERMITS. IF DOWNSPOUT CONTAINS GROUNDWATER FLOWS, SEE NOTE 11.
3. ALL ITEMS EXCEPT THE 3" DOWNSPOUT SHALL BE LOCATED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.
4. WHEN SIDEWALK IS PRESENT/PROPOSED AND WHEN THE 3" PVC DOWNSPOUT WILL BE WITHIN THE CONCRETE OF THE SIDEWALK, THE CONTRACTOR SHALL INSTALL A CONTROL JOINT IN THE SIDEWALK OVER THE DOWNSPOUT. THE THICKNESS OF THE CONCRETE SIDEWALK OVER THE DOWNSPOUT SHALL NOT BE LESS THAN 2", OR A STEEL TROUGH OR TRENCH DRAIN MAY BE USED AS APPROVED BY THE CITY ENGINEER.
5. ALL PIPE AND COMPONENTS OF DOWNSPOUT SYSTEM ARE PRIVATELY OWNED AND MAINTAINED.
6. THE FOLLOWING DISCHARGE CONDITIONS APPLY:
   A. DOWNSPOUT SHALL NOT DIRECTLY DISCHARGE OVER ANY PUBLIC SIDEWALK OF THE CITY (REF. CODIFIED ORDINANCE 1335.01) OR ONTO A SIDEWALK, STREET, OR PUBLIC GROUND WITHIN THE CITY, WHEN IN THE OPINION OF THE CITY ENGINEER A PUBLIC NUISANCE IS CAUSED BY DOING SO (REF. CODIFIED ORDINANCE 903.02).
   B. DOWNSPOUT DISCHARGES SHALL NOT CONTAIN ANY GRAY WATER OR OTHER ILLICIT DISCHARGES.
   C. DOWNSPOUTS SHALL NOT BE CONNECTED TO A SANITARY SEWER.
7. A "STREET OPENING PERMIT" IS REQUIRED FROM THE ENGINEERING DEPARTMENT FOR ANY EXCAVATION WITHIN CITY RIGHT-OF-WAY OR OTHER CITY-OWNED PROPERTY (REF. CODIFIED ORDINANCE CHAPTER 909).
8. A "SEWER CONNECTION PERMIT" IS REQUIRED FROM THE ENGINEERING DEPARTMENT FOR ANY DIRECT OR INDIRECT CONNECTION OF A PIPE TO A CITY-OWNED STORM SEWER, CATCH BASIN, OR MANHOLE.
9. MODIFICATIONS TO THE CONFIGURATION, ITEMS, AND MATERIALS SHOWN MAY BE ALLOWED OR REQUIRED BY THE CITY ENGINEER.
10. FOR DOWNSPOUTS THAT ARE DIRECTED TO DISCHARGE TOWARD A CITY STREET WITHOUT CURB, SEE CITY STD. DWG. NO. 22.
11. FOR DOWNSPOUTS THAT CONTAIN GROUNDWATER DISCHARGES (FROM SUMP PUMPS OR GRAVITY FLOW):
   A. PRIMARY OUTLET SHOULD BE DIRECTLY CONNECTED TO CATCH BASIN OR MANHOLE, IF POSSIBLE, IN LIEU OF CURB OUTLET SHOWN. DIRECT CONNECTION TO CATCH BASIN OR MANHOLE SHALL BE BY AN APPROVED CORE-AND-SEAL BOOT. APPROPRIATE PERMITS MUST BE OBTAINED FROM THE CITY ENGINEERING DEPARTMENT AND THE WORK MUST BE INSPECTED.
   B. IF CATCH BASIN OR MANHOLE IS UNAVAILABLE BUT STORM SEWER IS AVAILABLE FOR DOWNSPOUT PRIMARY OUTLET DIRECT CONNECTION, CONSTRUCT DOWNSPOUT OUTLET PER CITY STANDARD DRAWING NO. 24.
   C. IF NO STORM SEWER, CATCH BASIN, OR MANHOLE IS AVAILABLE FOR DIRECT CONNECTION, DOWNSPOUT OUTLET MAY BE CONSTRUCTED PER THIS DRAWING CONTINGENT UPON SATISFYING ALL STATED DISCHARGE CONDITIONS.

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APPROVED DATE: MAR. 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_23.dwg**

REVISIONS

DESCRIPTION	DATE	BY

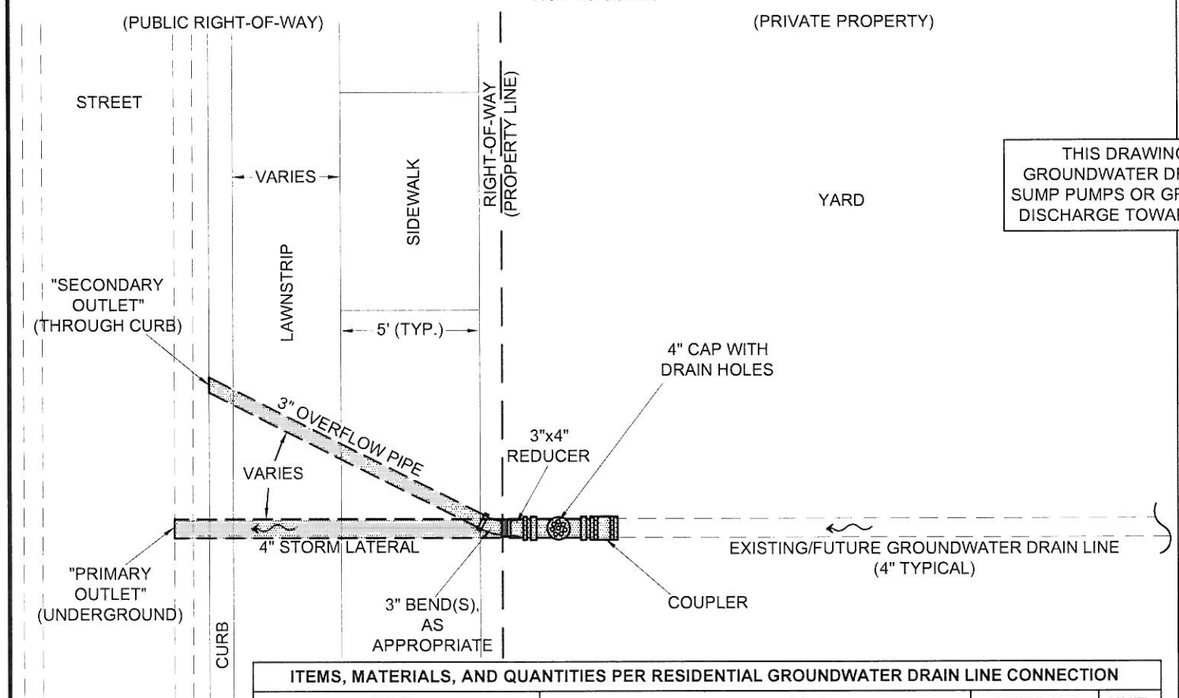
STANDARD DRAWING NO. 23

DOWNSPOUT OUTLET
(CURBED STREET)

SHEET 1 OF 1

PLAN VIEW

NOT TO SCALE



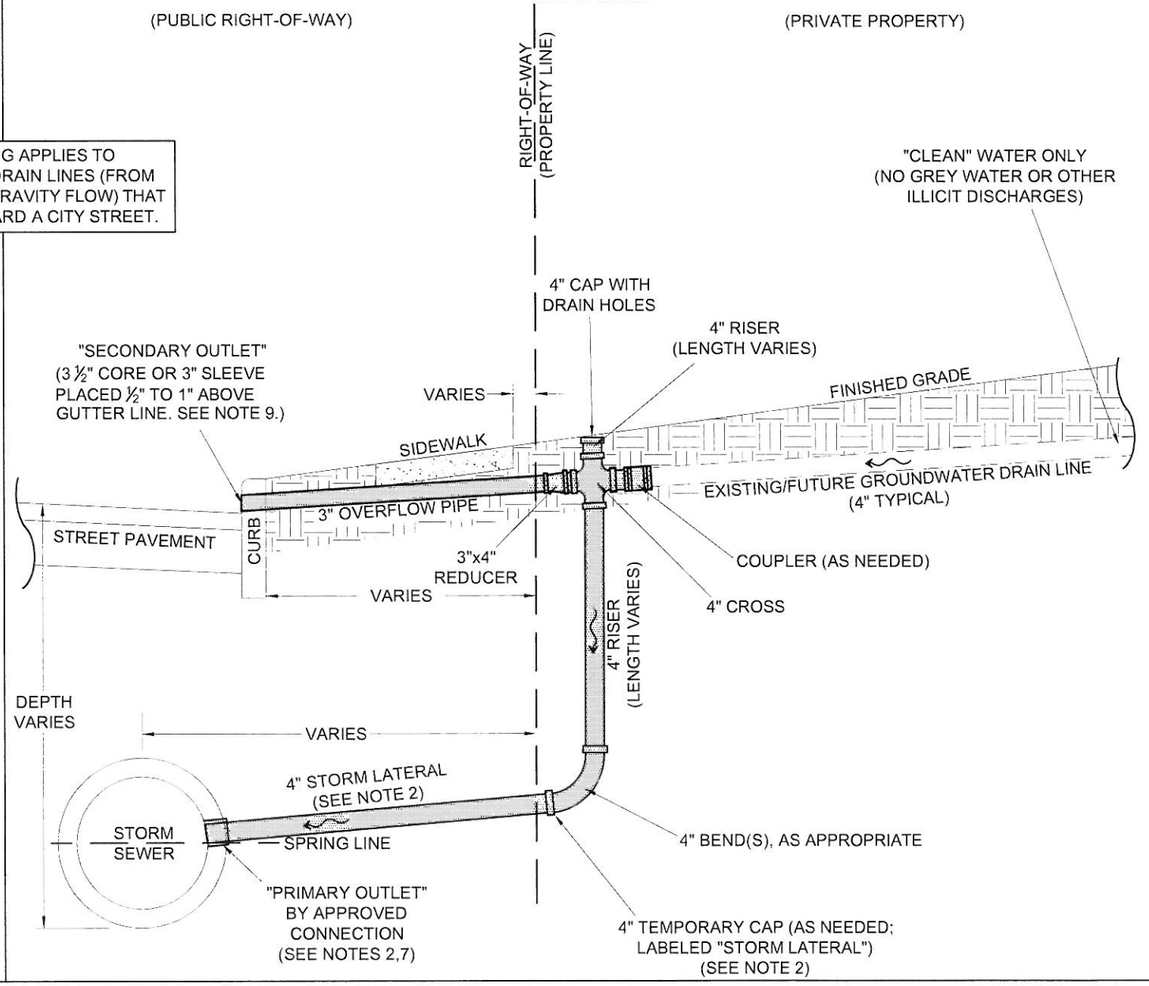
THIS DRAWING APPLIES TO GROUNDWATER DRAIN LINES (FROM SUMP PUMPS OR GRAVITY FLOW) THAT DISCHARGE TOWARD A CITY STREET.

ITEMS, MATERIALS, AND QUANTITIES PER RESIDENTIAL GROUNDWATER DRAIN LINE CONNECTION

ITEM	MATERIAL TYPE	QUANTITY	UNIT
3" OVERFLOW PIPE	PVC SCH. 40 (707.43 OR 707.45)	VARIES	FT.
3"x4" REDUCER	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
APPROVED CONNECTION	(SEE NOTE 5)	1	EACH
4" STORM LATERAL	PVC (SDR 35; 707.45) OR HDPE (707.33) WITH BELL AND SPIGOT RUBBER-GASKETED JOINTS	VARIES	FT.
4" TEMPORARY CAP (AS NEEDED)	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
3" & 4" BENDS	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	VARIES	EACH
4" RISER	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	VARIES	FT.
4" CROSS	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
4" CAP WITH DRAIN HOLES	PVC (707.43 OR 707.45) OR HDPE (707.32 OR 707.33)	1	EACH
COUPLER (AS NEEDED)	NEOPRENE WITH STAINLESS STEEL CLAMPS	1	EACH

PROFILE VIEW

NOT TO SCALE



NOTES:

1. FOR CITY PROJECTS: ONE GROUNDWATER DRAIN LINE CONNECTION SHALL BE PROVIDED FOR EACH LOT AS DIRECTED BY THE CITY ENGINEER. APPROPRIATE QUANTITIES, PAY ITEMS, AND NOTES SHALL BE PROVIDED ON THE CONSTRUCTION PLANS.
2. FOR NEW SUBDIVISIONS: ONE GROUNDWATER DRAIN LINE CONNECTION SHALL BE PROVIDED FOR EACH LOT UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. THE CONTRACTOR/DEVELOPER SHALL PROVIDE APPROVED CONNECTION FOR PRIMARY OUTLET, 4" STORM LATERAL, AND 4" TEMPORARY CAP ONLY. THE LOCATION OF THE 4" TEMPORARY CAP SHALL BE INDICATED BY A STAKE IN THE GROUND LOCATED VERTICALLY ABOVE THE CAP AND CLEARLY MARKED SHOWING STORM LATERAL DEPTH. APPROPRIATE SKETCHES, QUANTITIES, PAY ITEMS, AND NOTES SHALL BE PROVIDED ON THE CONSTRUCTION PLANS. REMAINING PORTIONS OF CONFIGURATION ARE THE RESPONSIBILITY OF THE HOME OWNER/BUILDER. ALL MATERIALS AND WORK SHALL BE AT THE DEVELOPER'S EXPENSE.
3. FOR PRIVATE WORK: THE CONFIGURATION SHOWN IS RECOMMENDED UNLESS OTHERWISE REQUIRED BY THE CITY ENGINEER AS A CONDITION FOR ISSUING APPLICABLE PERMITS OR ADDRESSING RESIDENTIAL GROUNDWATER DISCHARGES DEEMED TO BE A PUBLIC NUISANCE BY THE CITY ENGINEER. ALL MATERIALS AND WORK SHALL BE AT THE OWNER'S EXPENSE.
4. FOR NEW OR VACANT LOTS, THE LOCATION OF THE GROUNDWATER DRAIN LINE CONNECTION SHOULD BE NEAR THE LOWEST CORNER OF THE LOT ALONG THE FRONTAGE. EXCEPTIONS MAY BE APPROVED BY THE CITY ENGINEER.
5. ALL PIPE AND COMPONENTS OF GROUNDWATER DRAIN LINE SYSTEM ARE PRIVATELY OWNED AND MAINTAINED.
6. THE PRIMARY OUTLET PREFERRED CONNECTION IS TO THE BACK OF A CATCH BASIN OR STORM MANHOLE (WHEN AVAILABLE ALONG FRONTAGE) AND SHALL BE MADE BY AN APPROVED CORE-AND-SEAL BOOT. FOR PRIMARY OUTLET DIRECT CONNECTION TO STORM SEWER, CONNECT 4" STORM LATERAL ABOVE SPRING LINE OF STORM SEWER USING MANUFACTURED WYE OR TEE, A SADDLE, OR CORE-AND-SEAL BOOT CONNECTION AS APPROVED BY THE CITY ENGINEER. GROUNDWATER DRAIN LINE MAY BE MODIFIED TO DISCHARGE DIRECTLY TO A DITCH OR CREEK IF AVAILABLE IN LIEU OF A STORM SEWER, CATCH BASIN, OR MANHOLE.
7. ONLY THE 3" OVERFLOW PIPE AND THE 4" STORM LATERAL SHALL BE WITHIN PUBLIC RIGHT-OF-WAY. ALL REMAINING ITEMS TO BE LOCATED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY.
8. WHEN SIDEWALK IS PRESENT/PROPOSED AND WHEN THE 3" OVERFLOW PIPE WILL BE WITHIN THE CONCRETE OF THE SIDEWALK, THE CONTRACTOR SHALL INSTALL A CONTROL JOINT IN THE SIDEWALK OVER SAID PIPE. THE THICKNESS OF THE CONCRETE SIDEWALK OVER THE DOWNSPOUT SHALL NOT BE LESS THAN 2".
9. IF CURB IS NOT AVAILABLE FOR SECONDARY OUTLET, CONSTRUCT SECONDARY OUTLET TO DISCHARGE OVERLAND PER CITY STANDARD DRAWING NO. 22.
10. A "STREET OPENING PERMIT" IS REQUIRED FROM THE ENGINEERING DEPARTMENT FOR ANY EXCAVATION WITHIN CITY RIGHT-OF-WAY OR OTHER CITY-OWNED PROPERTY (REF. CODIFIED ORDINANCE CHAPTER 909).
11. A "SEWER CONNECTION PERMIT" IS REQUIRED FROM THE ENGINEERING DEPARTMENT FOR ANY DIRECT OR INDIRECT CONNECTION OF PIPE TO A CITY-OWNED STORM SEWER, CATCH BASIN, OR MANHOLE.
12. MODIFICATIONS TO THE CONFIGURATION, ITEMS, AND MATERIALS SHOWN MAY BE ALLOWED OR REQUIRED BY THE CITY ENGINEER.
13. FOR OUTLET CONFIGURATIONS OF DOWNSPOUTS THAT DO NOT DISCHARGE GROUNDWATER, SEE CITY STD. DWGS. NO. 22 AND 23.

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APPROVED BY: CDB, RMB

DRAWING FILE NAME: **ce_24.dwg**

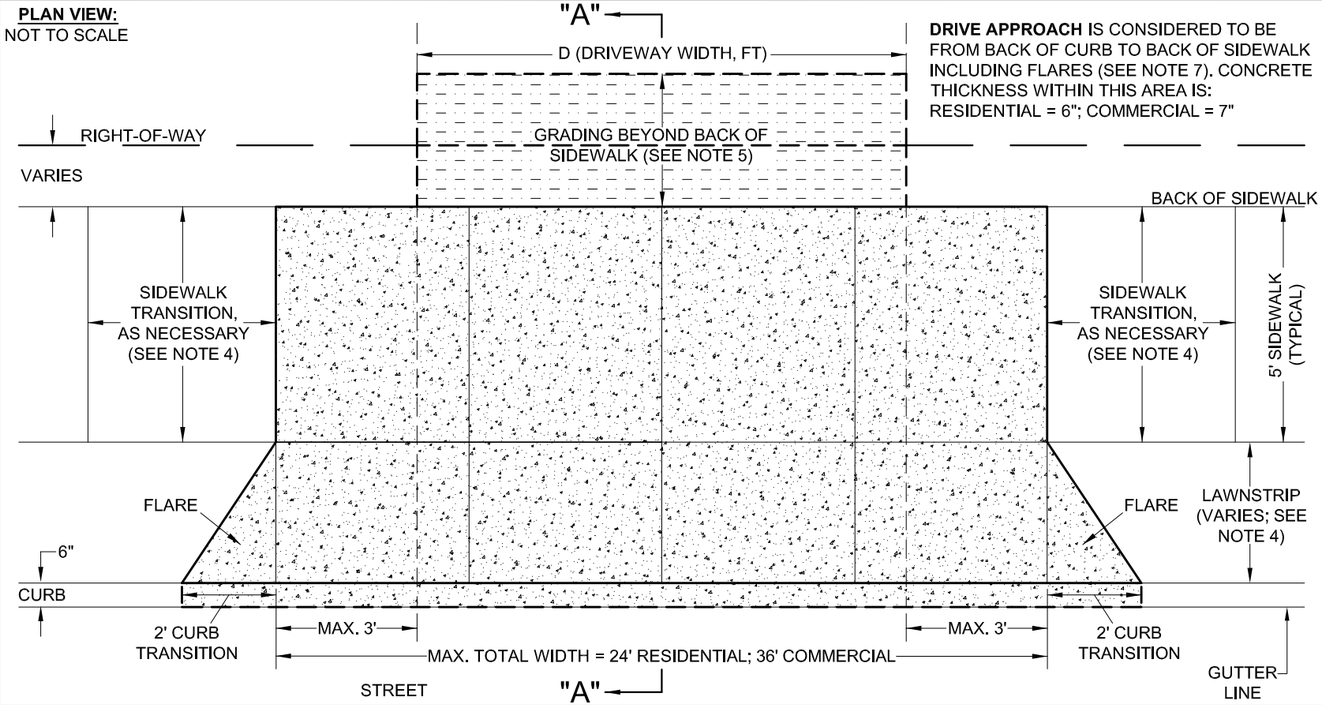
REVISIONS

DESCRIPTION	DATE	BY
REVISIONS	6/4/12	CDB
REVISIONS	7/24/12	CDB

STANDARD DRAWING NO. 24

GROUNDWATER DRAIN LINE CONNECTION

PLAN VIEW:
NOT TO SCALE

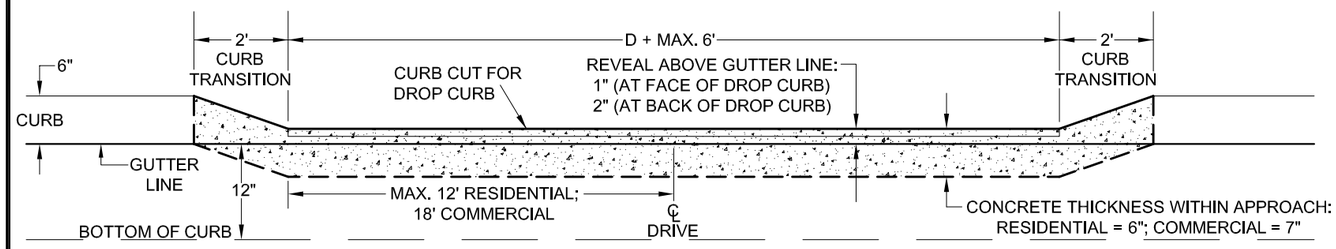


DRIVE APPROACH IS CONSIDERED TO BE FROM BACK OF CURB TO BACK OF SIDEWALK INCLUDING FLARES (SEE NOTE 7). CONCRETE THICKNESS WITHIN THIS AREA IS: RESIDENTIAL = 6"; COMMERCIAL = 7"

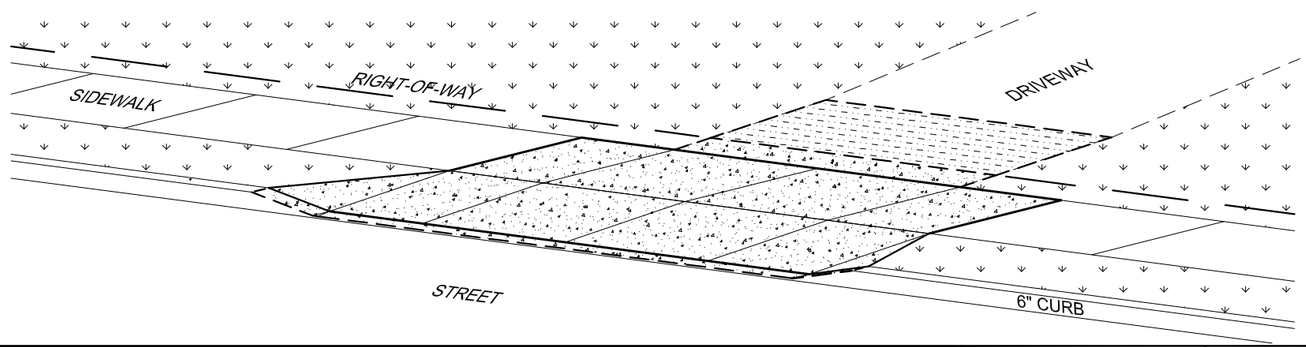
NOTES:

1. SIDEWALKS, CURBS, AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
2. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY'S ENGINEER'S DISCRETION.
3. ALTERNATIVE DESIGNS MAY BE APPROVED OR REQUIRED BY THE CITY ENGINEER FOR COMMERCIAL DRIVES.
4. WHEN LAWNSTRIP WIDTH IS LESS THAN 3 FEET, LOWER THE DRIVE APPROACH/SIDEWALK PROFILE SO THAT DRIVE APPROACH CROSS SLOPE IS CONSTANT ¼" PER FOOT FROM BACK OF CURB TO BACK OF SIDEWALK. CONSTRUCT SIDEWALK TRANSITIONS WITH A MAXIMUM 12:1 LONGITUDONAL SLOPE (PARALLEL TO STREET).
5. GRADE AS APPROPRIATE OR IN ACCORDANCE WITH PLANS TO PROVIDE ADEQUATE TRANSITION TO DRIVEWAY AND YARD. FOR CITY PROJECTS, DRIVE MATERIALS AND BUILDUP SHALL MATCH EXISTING. GRADING AND MATERIALS SHALL BE PAID UNDER APPROPRIATE DRIVE RESTORATION ITEMS, ETC.
6. FOR CITY PROJECTS AND REIMBURSEMENT PROGRAM, DRIVE APPROACH PAY LIMITS SHALL CORRESPOND WITH DRIVE APPROACH LIMITS AS INDICATED HEREIN. IF SIDEWALK TRANSITIONS ARE CONSTRUCTED (SEE NOTE 5), PAY LIMITS SHALL BE EXTENDED TO INCLUDE THE COST OF THE SIDEWALK TRANSITIONS. DRIVE APPROACHES AND PAY LIMITS DO NOT INCLUDE ANY CONCRETE PORTIONS OF DRIVE BEYOND BACK OF SIDEWALK OR ANY OTHER WORK NOT DIRECTLY RELATED TO THE CONSTRUCTION OF THE DRIVE APPROACH. THE COSTS ASSOCIATED WITH EXCAVATION, FORMING, GRADING, AND RESTORATION DIRECTLY RELATED TO THE DRIVE APPROACH AS WELL AS THE COSTS FOR THE CURB CUT/DROP CURB ARE INCIDENTAL TO THE COST OF THE DRIVE APPROACH.
7. REFER TO CITY STANDARD DRAWING NO. 28 FOR DRIVE APPROACHES WITH SIDEWALK AGAINST CURB. CONNECT APRON TO CURB WITH DOWELS OR WIRE MESH.
8. PLACE 1/2" EXPANSION JOINTS AGAINST EXISTING CONCRETE DRIVES AND WALKS, BUILDING WALLS, AND OTHER FIXED OBJECTS.
9. WHEN THE LOCATION OF THE DRIVE APPROACH IS UNKNOWN AT THE TIME OF CURB CONSTRUCTION, THE DROP MAY BE SAW-CUT WITH THE CITY ENGINEER'S APPROVAL.
10. ANY MODIFICATIONS TO THESE STANDARDS ARE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.

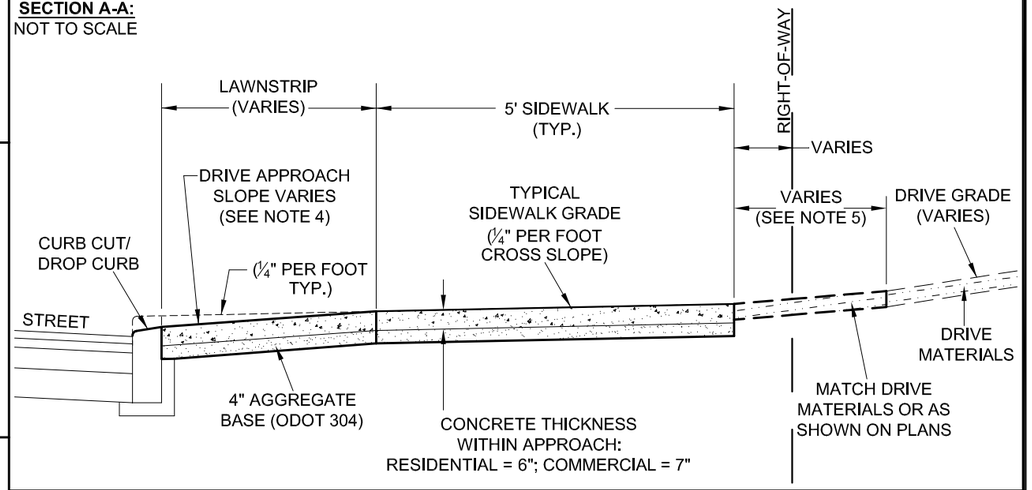
PROFILE VIEW (ALONG CURB):
NOT TO SCALE



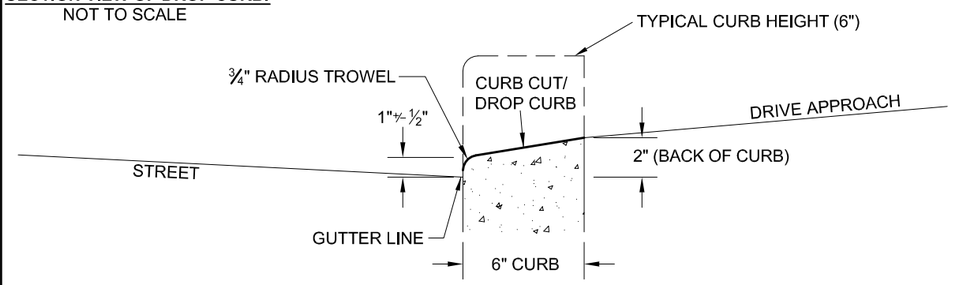
ISOMETRIC VIEW:
NOT TO SCALE



SECTION A-A:
NOT TO SCALE



SECTION VIEW OF DROP CURB:
NOT TO SCALE



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APPROVED DATE: MAR. 2012

APPROVED BY: CDB, RMB

DRAWING FILE NAME: **ce_28.dwg**

REVISIONS

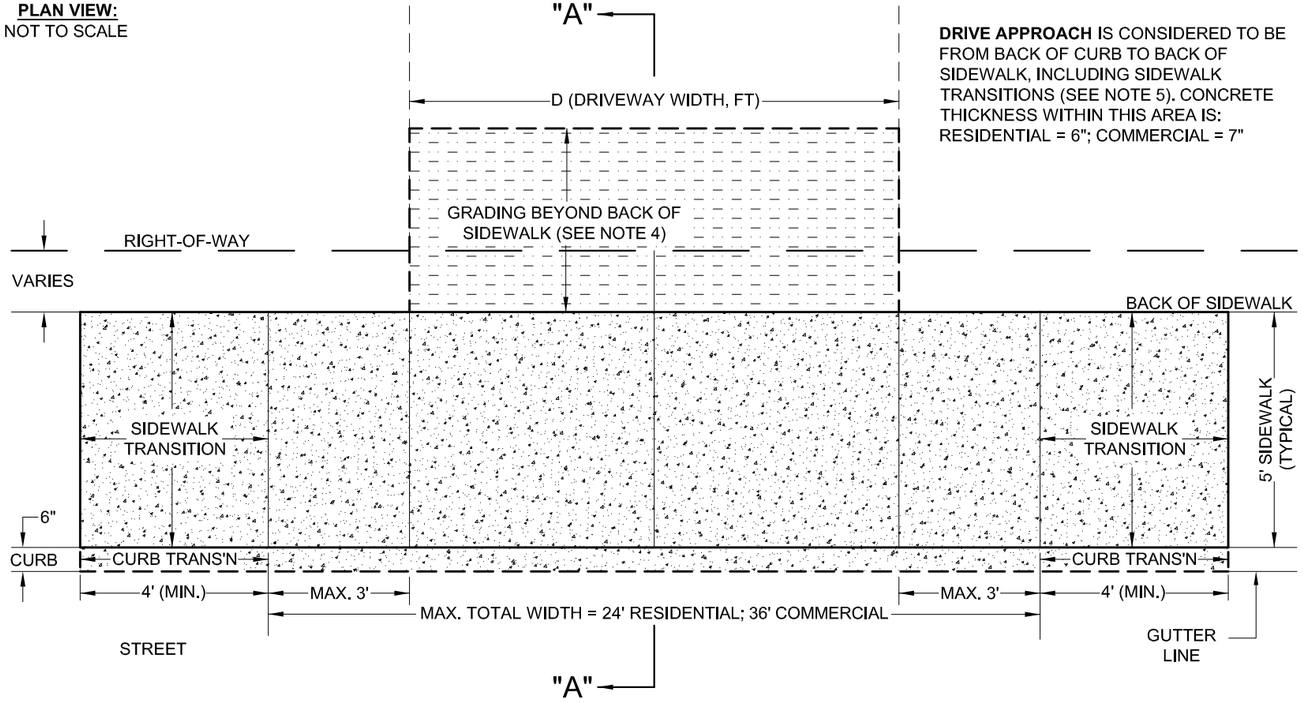
DESCRIPTION	DATE	BY
NOTE MODIFICATIONS	4/10/12	CDB

STANDARD DRAWING NO. 27

DRIVE APPROACH

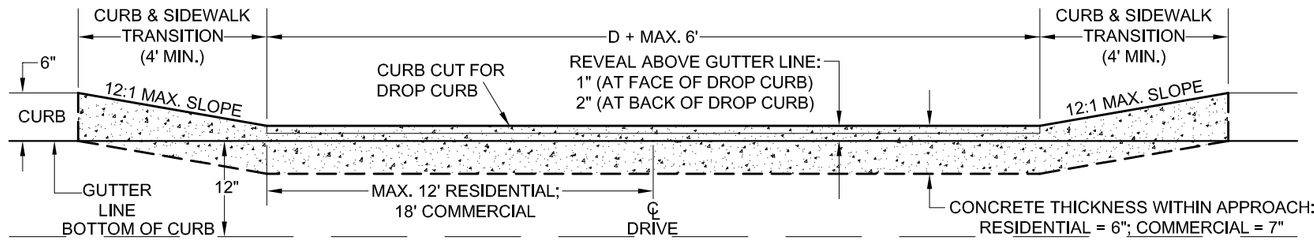
WITH LAWNSTRIP BETWEEN SIDEWALK & CURB

PLAN VIEW:
NOT TO SCALE

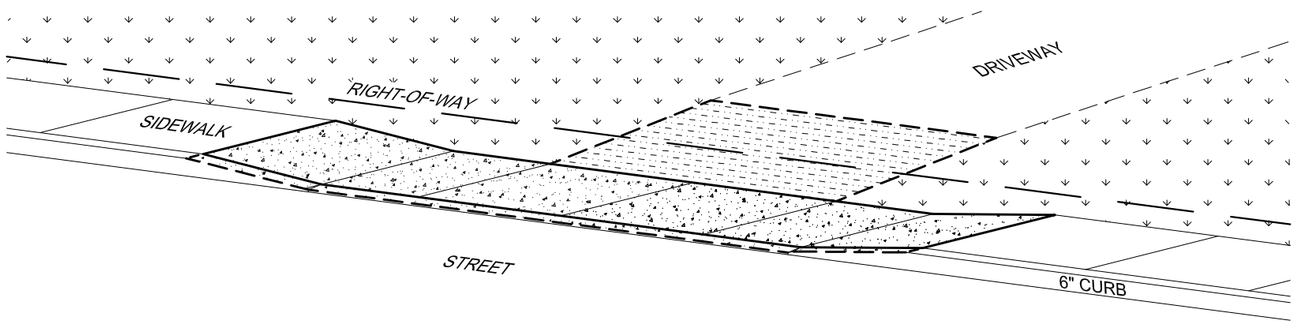


DRIVE APPROACH IS CONSIDERED TO BE FROM BACK OF CURB TO BACK OF SIDEWALK, INCLUDING SIDEWALK TRANSITIONS (SEE NOTE 5). CONCRETE THICKNESS WITHIN THIS AREA IS: RESIDENTIAL = 6"; COMMERCIAL = 7"

PROFILE VIEW (ALONG CURB):
NOT TO SCALE



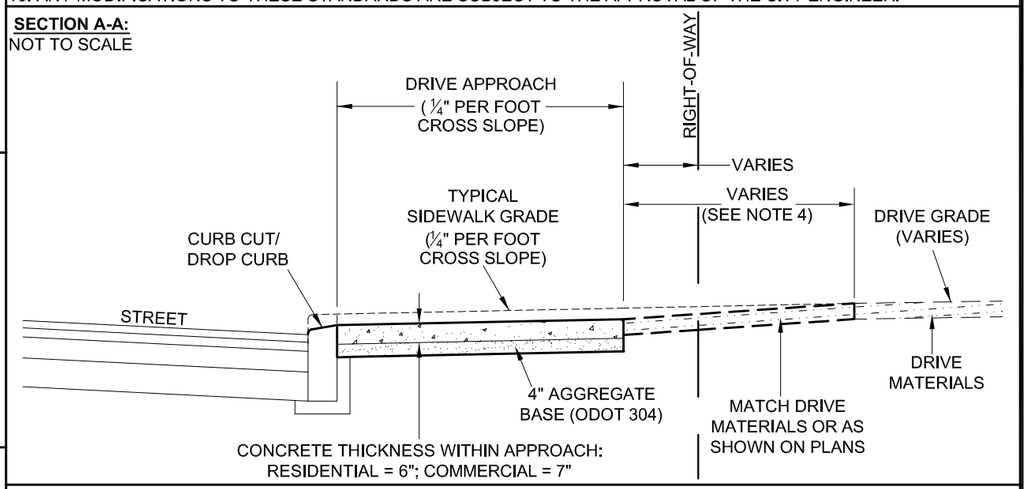
ISOMETRIC VIEW:
NOT TO SCALE



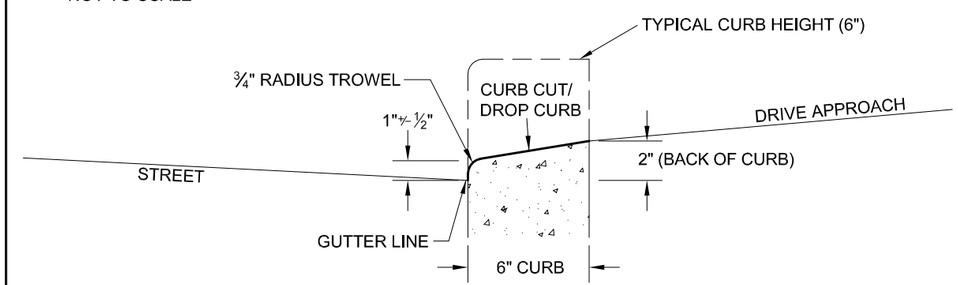
NOTES:

1. SIDEWALKS, CURBS, AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
2. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY'S ENGINEER'S DISCRETION.
3. ALTERNATIVE DESIGNS MAY BE APPROVED OR REQUIRED BY THE CITY ENGINEER FOR COMMERCIAL DRIVES.
4. GRADE AS APPROPRIATE OR IN ACCORDANCE WITH PLANS TO PROVIDE ADEQUATE TRANSITION TO DRIVEWAY AND YARD. FOR CITY PROJECTS, GRADING AND MATERIALS SHALL BE PAID UNDER APPROPRIATE DRIVE RESTORATION ITEMS, ETC.
5. FOR CITY PROJECTS AND REIMBURSEMENT PROGRAM, DRIVE APPROACH PAY LIMITS SHALL CORRESPOND WITH DRIVE APPROACH LIMITS AS INDICATED HEREIN. DRIVE APPROACHES AND PAY LIMITS DO NOT INCLUDE FLARES OR ANY CONCRETE PORTION OF DRIVE BEYOND BACK OF SIDEWALK, OR ANY OTHER WORK NOT DIRECTLY RELATED TO THE CONSTRUCTION OF OF THE DRIVE APPROACH. THE COSTS ASSOCIATED WITH EXCAVATION, FORMING, GRADING, AND RESTORATION DIRECTLY RELATED TO THE DRIVE APPROACH AS WELL AS THE COSTS FOR THE CURB CUT/DROP CURB ARE INCIDENTAL TO THE COST OF THE DRIVE APPROACH.
6. DUE TO 1/4" PER FOOT CROSS SLOPE, BACK OF TYPICAL 5' SIDEWALK WITHIN APPROACH IS ONLY 3 ¼" ABOVE GUTTER LINE (EXCLUDING SIDEWALK TRANSITIONS). ALTERNATIVE DRIVE APPROACH OPTIONS MAY BE APPROVED OR REQUIRED WHEN DEPTH OF STORM WATER RUNOFF ALONG THE CURB IS ANTICIPATED TO RESULT IN EXCESSIVE PONDING WITHIN THE DRIVE APPROACH AREA OR CAUSE OTHER DRAINAGE PROBLEMS IN THE VICINITY.
7. REFER TO CITY STANDARD DRAWING NO. 29 FOR COMBINED CURB AND SIDEWALK DETAILS. CONNECT APRON TO CURB WITH DOWELS OR WIRE MESH.
8. PLACE 1/2" EXPANSION JOINTS AGAINST EXISTING CONCRETE DRIVES AND WALKS, BUILDING WALLS AND OTHER FIXED OBJECTS.
9. WHEN THE LOCATION OF THE DRIVE APPROACH IS UNKNOWN AT THE TIME OF CURB CONSTRUCTION, THE DROP MAY BE SAW-CUT WITH THE CITY ENGINEER'S APPROVAL.
10. ANY MODIFICATIONS TO THESE STANDARDS ARE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.

SECTION A-A:
NOT TO SCALE



SECTION VIEW OF DROP CURB:
NOT TO SCALE



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APPROVED DATE: MAR. 2012

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REVISIONS

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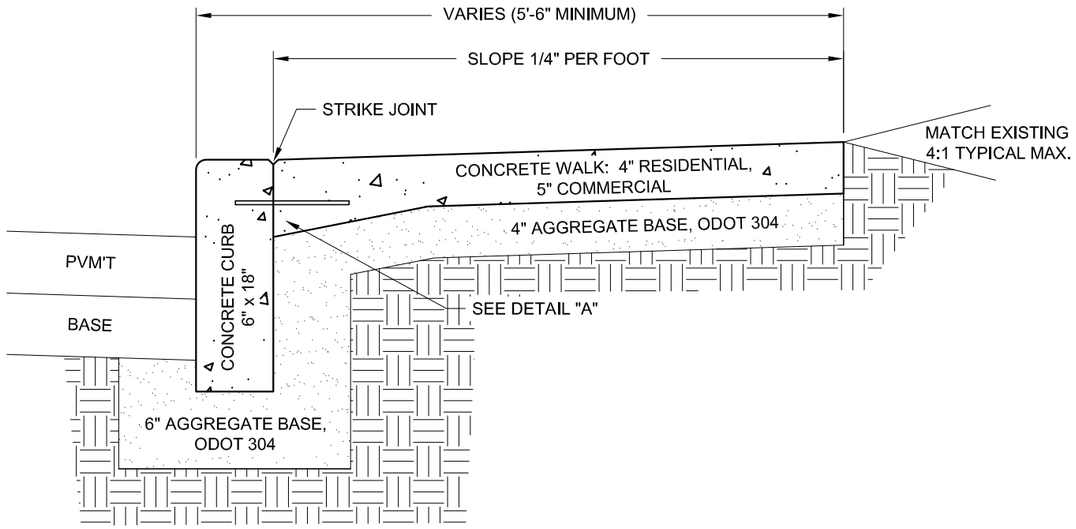
MINOR FORMAT EDIT	6/4/12	CDB

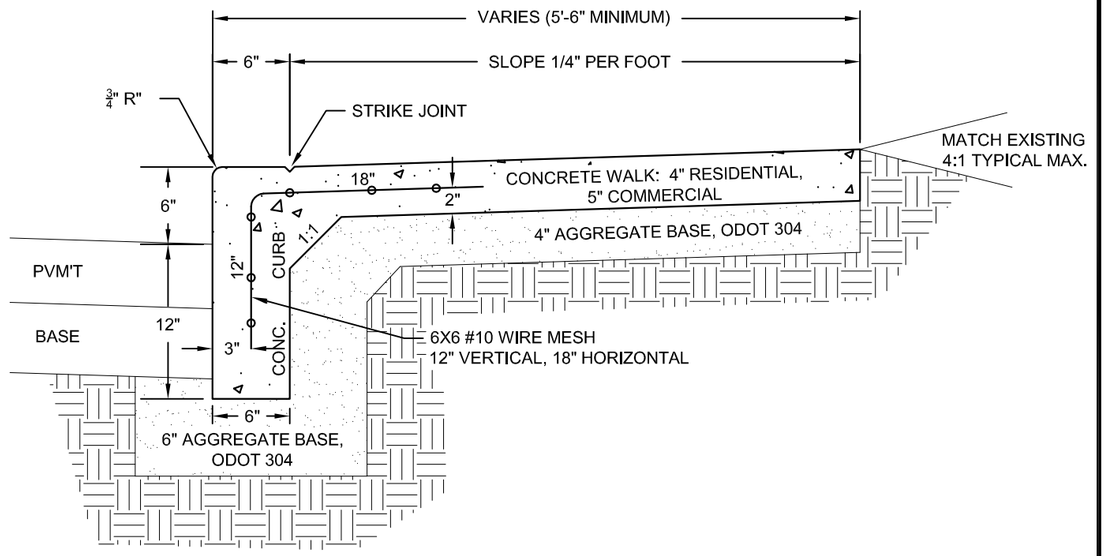
STANDARD DRAWING NO. 28

DRIVE APPROACH
WITH SIDEWALK AGAINST CURB

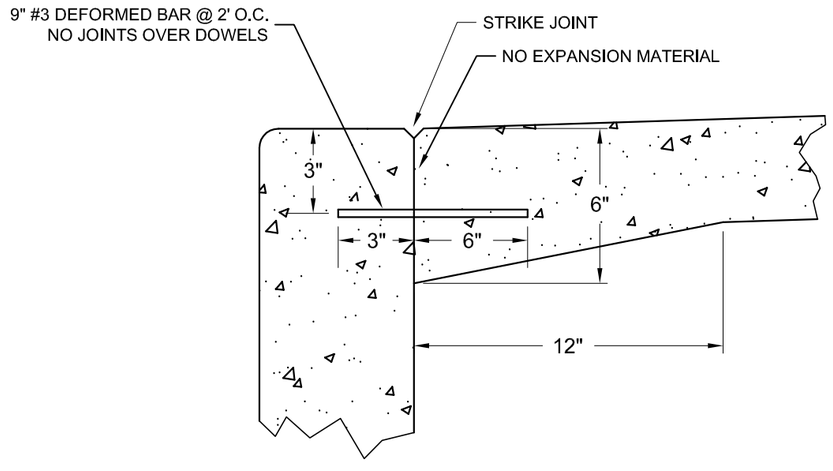
TYPE A
CONCRETE WALK
ADJACENT TO CURB



TYPE B
INTEGRAL CONCRETE WALK
AND CURB



DETAIL "A"



NOTES:

1. CURB CONSTRUCTION MUST TO CONFORM TO ODOT 609 AND THE CURRENT CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
2. CONCRETE MATERIAL FOR CURB AND WALK MUST BE ODOT 499 CLASS 'C' CONCRETE WITH LIMESTONE AGGREGATE.
3. NO FOUNDRY SAND OR SLAG PERMITTED IN AGGREGATE BASE, ODOT 304.
4. CONCRETE WALK REPLACED OR INSTALLED ADJACENT TO EXISTING CONCRETE CURB MUST BE DOWELED TO THE EXISTING CURB, UNLESS DETERMINED OTHERWISE BY THE CITY ENGINEER.
5. CURB CONTRACTION JOINT MUST BE SPACED 10 FEET TYPICALLY; WALK CONTRACTION JOINTS MUST BE SPACED 5 FEET TYPICALLY, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. CURB EXPANSION JOINTS MUST BE INSTALLED AT CURB INLET CATCH BASIN AND AT ANY OTHER RIGID STRUCTURES. CURB EXPANSION AND CONSTRUCTION JOINTS MUST BE DOWLED WITH TWO (2) #5 THRU #8 SMOOTH BARS, 18" LONG, EXTENDING 9" INTO EACH CURB.
6. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

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APPROVED DATE: MARCH 2012

APPROVED BY: CDB, RMB

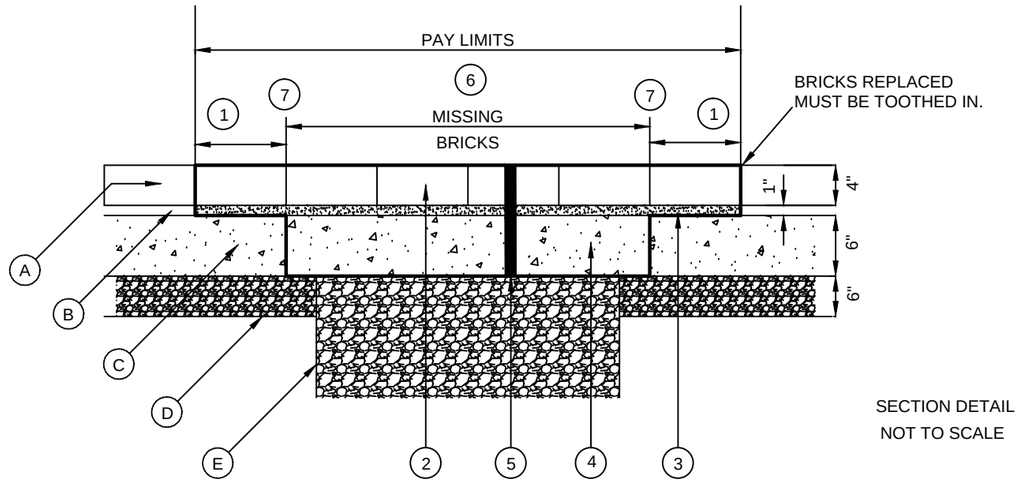
DRAWING FILE NAME: **ce_29.dwg**

REVISIONS		
DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 29

COMBINED CURB & WALK

EXISTING BRICK SURFACE PAVEMENT REPAIR



SECTION DETAIL
NOT TO SCALE

(A) EXISTING BRICK PAVERS

(B) EXISTING SAND BEDDING LAYER

(C) EXISTING CONCRETE BASE - DEPTH AND TYPE VARIES

(D) EXISTING AGGREGATE BASE

(E) EXISTING RANDOM MATERIAL. SUB-GRADE OR FOR NEW TRENCH COMPACTED TYPE I BACKFILL TRENCH REPAIR PER CITY STD. DWG. 19 - ODOT 304 OR 613.

ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

NO FOUNDRY SAND OR SLAG PERMITTED IN AGGREGATE BASE, ODOT ITEM 304, OR LOW STRENGTH MORTAR BACKFILL, ODOT ITEM 613.

PAVEMENT REPLACEMENT SECTION PAYMENT IS FOR CITY PROJ. REPAIR AREAS, PAYMENT INCLUDED IN COST OF PIPE FOR NEW TRENCH.

(1) VARIES, 0" TO 12" MAX - EX. BRICK TO BE REMOVED AND RESET AS NEEDED, TO ACCESS EX. CONC. BASE. DO NOT SAW CUT BRICK.

(2) REPLACE/RESET 4" X 8" BRICK PAVERS, SEE NOTE SHT. 2/2 FOR CITY PROVIDED BRICK.

(3) 1" CONCRETE SAND/CEMENT (3:1) BED 703.02 ASTM C-33

(4) 6" CONCRETE BASE, CLASS "C", ODOT ITEM 305

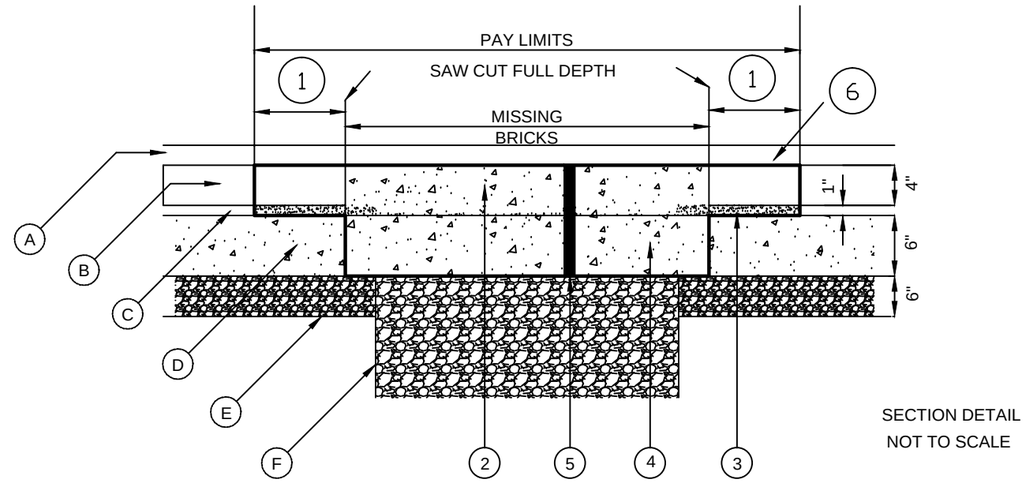
(5) BRICK PAVEMENT REPLACEMENT SECTION PAYMENT ONLY FOR REPAIR AREAS, PAYMENT INCLUDED IN COST OF PIPE FOR NEW TRENCH.

(6) BROOM SURFACE W/ TECHNI-SEAL POLYMERIC SAND OR EQUAL TO FILL JOINTS. PLATE TAMP W/ MATT PROTECTION & DAMPEN PER MF'G. SPEC.

(7) FOR BRICK PAVEMENT REPAIR SAW CUT A CLEAN EDGE FULL DEPTH TO REMOVE FAILED CONC. BASE AND/OR FAILED AGG. BASE AS DIRECTED .

FOR NEW TRENCH PER STD. DW'G 19, SAW CUT FULL DEPTH TO THE LIMITS SHOWN.

EXISTING ASPHALT OVER BRICK PAVEMENT SURFACE REPAIR



SECTION DETAIL
NOT TO SCALE

(A) EXISTING ASPHALT SURFACE

(B) EXISTING BRICK PAVERS

(C) EXISTING SAND BEDDING LAYER

(D) EXISTING CONCRETE BASE - DEPTH AND TYPE VARIES

(E) EX. AGGREGATE BASE

(F) EX. RANDOM MAT'L. SUB-GRADE OR FOR NEW TRENCH COMPACTED TYPE I BACKFILL TRENCH REPAIR PER CITY STD. DW'G 19 - ODOT 304(M) OR 613(M) LSM. LOW STRENGTH MORTAR

PAVEMENT REPLACEMENT SECTION PAYMENT IS FOR CITY PROJ. REPAIR AREAS, PAYMENT INCLUDED IN COST OF PIPE FOR NEW TRENCH.

(1) VARIES, 0" TO 12" MAX - EX. BRICK TO BE REMOVED AND RESET AS NEEDED, TO TOOTH IN & ACCESS EX. CONC. BASE. SAW CUT BRICK IF NEEDED.

(2) CONCRETE BASE, CLASS "C", ODOT ITEM 305 TO TOP OF BRICK

(3) REMOVE EXISTING SAND BED BETWEEN BRICK

(4) EXCAVATE FOR MINIMUM 6" CONCRETE BASE

(5) CONCRETE BASE, CLASS "C", ODOT ITEM 305, REPLACEMENT SECTION

(6) ASPHALT REPLACEMENT (IN KIND DEPTH) MAXIMUM 2" SURFACE COURSE, ODOT 448 TYPE I, OVER INTERMEDIATE COURSE, ODOT 448 TYPE I, AS NEEDED FOR IN KIND ASPHALT SECTION (ASPHALT SURFACE MUST BE "IN KIND" - OTHER THAN 448 MAY BE REQUIRED) ASPHALT TO EXTEND TO A NEAT SAW-CUT LINE. SEAL EDGES WITH ASTM D-3405 HOT OR ASTM C-90 COLD ASPHALT CEMENT.

ALL RESTORATION/REPLACEMENT WORK TO BE AS DIRECTED AND APPROVED BY THE ENGINEER

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

DRAWING FILE NAME: **ce_31.dwg**

REVISIONS

DESCRIPTION	DATE	BY
CONSISTENCY REVIEW	2/1/13	JTD

STANDARD DRAWING NO. 31

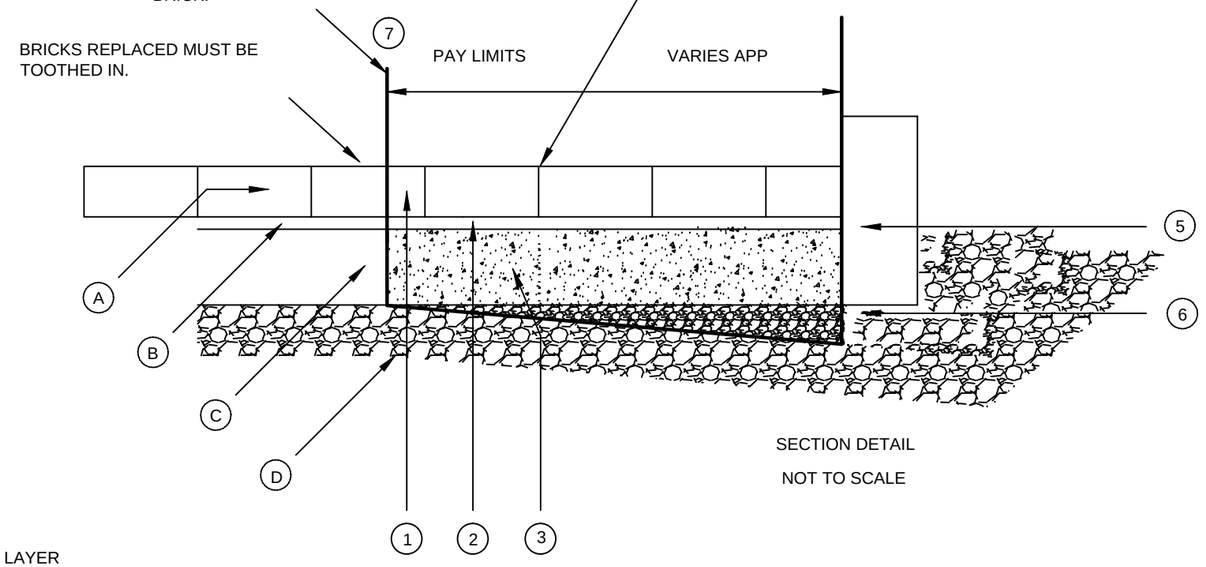
PAVEMENT REPAIR

ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

REMOVE BRICK PRIOR TO SAWCUT APP.

IF THE BRICK IS SAWCUT, THE BRICK REPLACEMENT NEEDS TO BE TOOTHED-IN REQUIRING THE USE OF ADDITIONAL SALVAGED BRICK.

BRICKS REPLACED MUST BE TOOTHED IN.



SECTION DETAIL

NOT TO SCALE

NO FOUNDRY SAND, ACBFS, GRANULATED SLAG OR OTHER SLAG PERMITTED IN ODOT 304, OR LOW STRENGTH MORTAR BACKFILL, ODOT 613

(A) EX. BRICK PAVERS

(B) EX. SAND BEDDING LAYER

(C) EX. CONCRETE BASE - DEPTH AND TYPE VARIES

(D) EX. AGGREGATE OR RANDOM MATERIAL SUB-GRADE

(1) RE-SET BRICK PAVERS, TOOTH IN BRICK TO MATCH EXISTING BRICK PAVEMENT.

(2) PROPOSED 1" SAND/CEMENT (3:1) SETTING BED ODOT 703.02 - ASTM C 33

(3) PROPOSED 6" CONCRETE BASE CLASS "C" - NO. 57 OR NO. 67 LIMESTONE ONLY

(4) BROOM SWEEP TECHNI SEAL POLYMERIC SAND OR EQUAL TO LOCK BRICK. PLATE TAMP W/ MATT PROTECTION & DAMPEN PER MF'G SPEC.

(5) NEW OR EXIST. CURB - IF NEW SEE STD. DW'G. 29 & 30

(6) REPAIR/REPLACE FAILED BASE WITH 304 CRUSHED AGGREGATE, 411 LIMESTONE OR 613 LSM IF APPROVED BY THE ENGINEER. CONCRETE AND AGGREGATE BASE TO BE REPAIRED AS DIRECTED BY THE ENGINEER INCLUDING CONCRETE REPLACEMENT AS NEEDED.

(7) FOR BRICK PAVEMENT REPAIR SAW CUT A CLEAN EDGE FULL DEPTH TO REMOVE FAILED CONC. BASE AND/OR FAILED AGG. BASE AS DIRECTED.

PAVEMENT REPLACEMENT SECTION PAYMENT IS FOR CITY PROJ. REPAIR AREAS, PAYMENT FOR CONC. BASE INCLUDED IN COST OF NEW CURB.

COST FOR ITEMS 1-2-3-4-6-7 ABOVE ARE CONSIDERED AS 1 PAY ITEM UNDER ROAD PAVEMENT REPLACEMENT QTY.

THIS EXHIBIT IS FOR BRICK PAVEMENT REPLACEMENT ALONG CURB OR GUTTER PLATE

BRICKS REMOVED ARE TO BE STORED FOR RE–USE – CITY WILL PROVIDE BRICKS AS NEEDED
CONTRACTOR IS TO PICK UP BRICK AT CITY SERVICE CENTER YARD
CONTRACTOR SHOULD BE PREPARED TO SORT BRICK FROM EXISTING STOCKPILES IF NECESSARY

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
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2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: JAN 2012

APPROVED BY: CDB, RMB, SLH

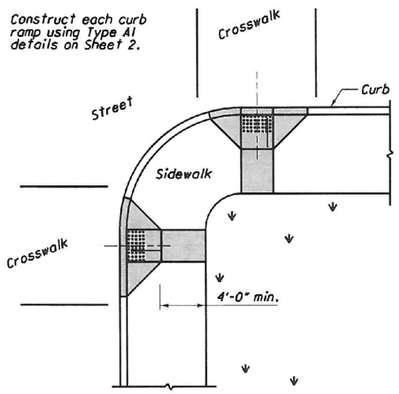
DRAWING FILE NAME: **ce_31.dwg**

REVISIONS

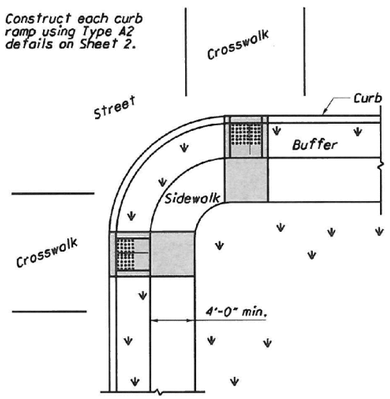
DESCRIPTION	DATE	BY
CONSISTENCY REVIEW	2/1/13	JTD

STANDARD DRAWING NO. 31

PAVEMENT REPAIR

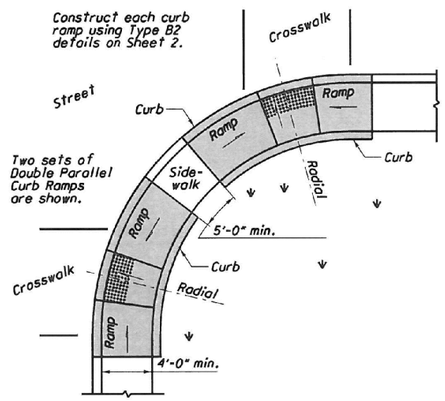


Use curb ramps with flared sides at locations with wide sidewalks.



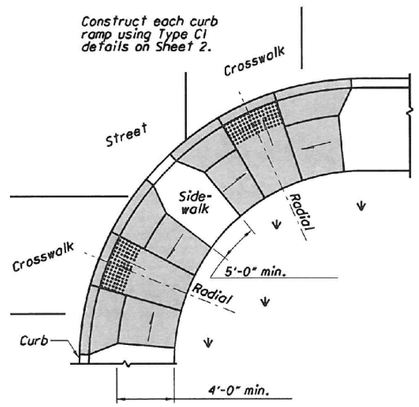
Use curb ramps with returned curbs where buffer is wide enough to accommodate ramp slope.

PERPENDICULAR CURB RAMPS



Place on streets having wide turning radius and where sidewalks are narrow.

PARALLEL CURB RAMPS



Curb ramp placement where streets have wide turning radius, and sufficient sidewalks width.

COMBINATION CURB RAMPS

PREFERRED CONSTRUCTION PLACEMENT

NOTES

GENERAL: This drawing shows curb ramp types details and placement examples for curb ramp construction, including the installation of detectable warnings.

Curb ramp types are shown on Sheet 2 and include Perpendicular, Parallel, and Combined types as specified to be constructed in the locations shown on the project plans.

Curb ramps added to an existing intersection or walk should be individually detailed on the project plans to assure that the design is appropriate for site constraints and all items can be constructed to ADA standards. The contractor may adjust the placement of curb ramps if existing field conditions warrant with the approval of the Engineer.

DETECTABLE WARNINGS: Install Detectable Warnings on each curb ramp with approved materials, as shown on Sheet 3. Install these proprietary products as per manufacturer's written instructions.

DRAINAGE: Contractor is to ensure the base of each constructed curb ramp allows for proper drainage, without exceeding allowable cross slope or ramp slopes. Vertical change in level exceeding ¼" between the 1) pavement and gutter, and 2) gutter and ramp, are not allowed.

SURFACE TEXTURE: Texture concrete surfaces by coarse brooming transverse to the ramp slopes to be rougher than the adjacent walk.

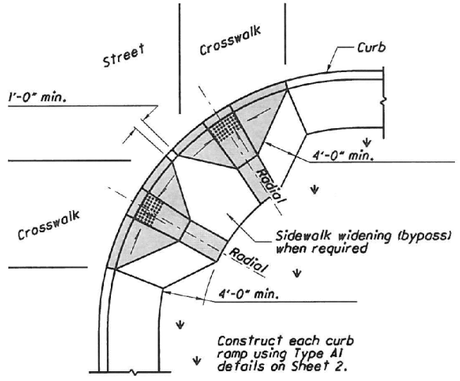
JOINTS: Provide expansion joints in the curb ramp as extensions of walk joints and consistent with Item 608.03 requirements for a new concrete walk. Provide a ½" Item 705.03 expansion joint filler around the edge of ramps built in existing concrete walks. Lines shown on this drawing indicate the ramp edges and slope changes, and do not necessarily indicate joint lines.

PAYMENT: Measure and pay for the ramp area within the shaded limits of this drawing as Item 608 Curb Ramp, Square Foot. This includes the cost of the ramp curbing, detectable warnings, landing areas and any additional materials, installation, grading, forming, and finishing required within the shaded area.

Work beyond the shaded ramp/landing area is paid for as curb (609) and walk (608). Removal of existing curb, walk (or existing curb ramps) are paid under Item 202.

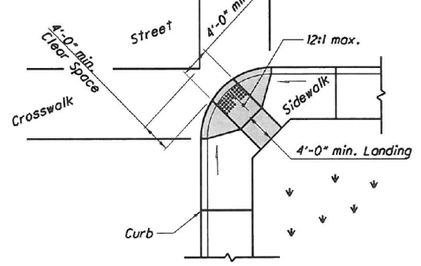
For at-grade crossing locations where only detectable warnings are required in order to acheive ADA compliance, measure and pay for the strip of detectable warnings as Item 608 Detectable Warning, Square Foot. The work to cast the tiles in place will also require removal of existing pavement (Item 202) to the nearest joint, or if no joint exists, a minimum of 4 feet.

Acceptable design on corners with wide turning radius where user is able to maneuver within crosswalk limits so as not to encroach into adjacent traveled lanes.



PERPENDICULAR RAMPS

Acceptable design for retrofit only where utilities prevent using a preferred layout.



Use this design only for existing walks, and when site constraints prohibit other designs. The diagonal type D ramp may be constructed as either a Perpendicular, Parallel or Combination curb ramp type. Avoid using where curb radii are less than 20'-0".

DIAGONAL RAMP (Type D)

ACCEPTABLE CONSTRUCTION PLACEMENT

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Dick B. Bacon — ADMINISTRATOR — 10-15-10 DATE

STDS. ENGINEER: M. Bline

OFFICE OF ROADWAY ENGINEERING

THIS DRAWING REPLACES BP-7.1 DATED 1-19-07.

STANDARD ROADWAY CONSTRUCTION DRAWING
NEW CURB RAMPS
(with Detectable Warnings)

SCD NUMBER BP-7.1

1 / 3

THE CITY'S STANDARD WHEEL CHAIR RAMP IS THE ODOT BP-7.1 WITH THE MODIFICATIONS NOTED.
SEE SHEET 4 OF 4 FOR CITY'S APPROVED TRUNCATED DOME PRODUCTS.

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MAY 2012

APPROVED BY: RMB

DRAWING FILE NAME: **ce_33.dwg**

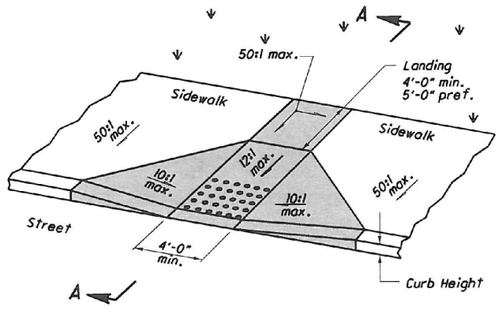
REVISIONS

DESCRIPTION	DATE	BY
REVISIONS	6/29/12	RMB

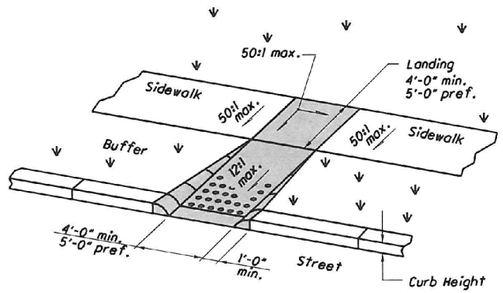
STANDARD DRAWING NO. 33

WHEEL CHAIR RAMP

SHEET 1 OF 4

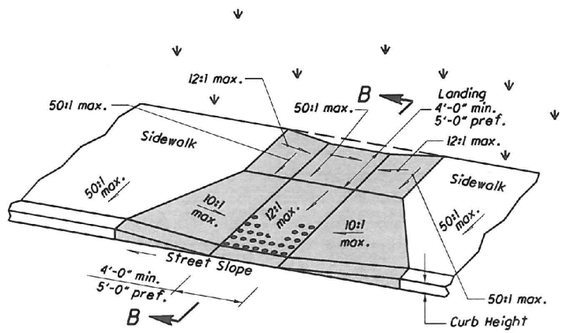


Type A1 (Perpendicular with flared sides)

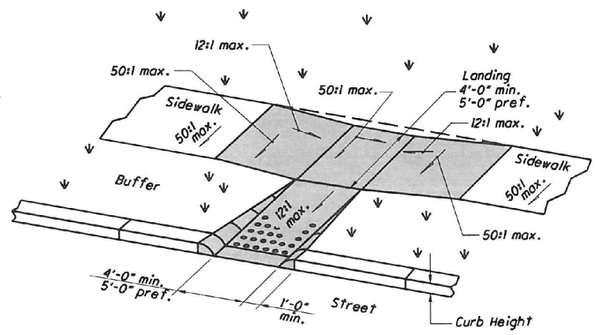


Type A2 (Perpendicular with returned curb)

PERPENDICULAR CURB RAMP DETAILS

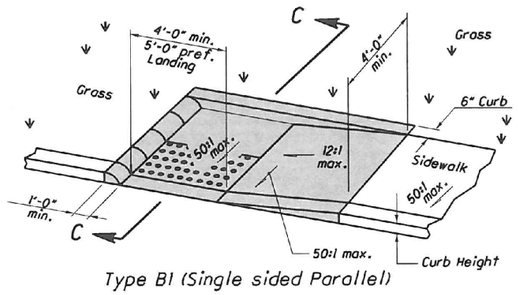


Type C1 (Combined with flared sides)

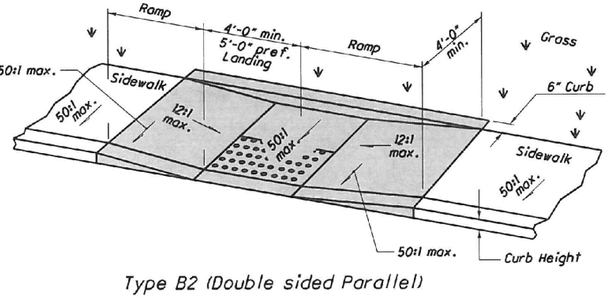


Type C2 (Combined with returned curb)

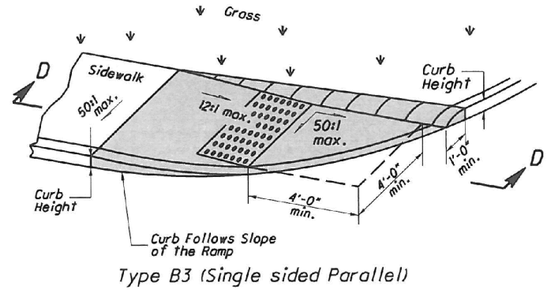
COMBINED CURB RAMP DETAILS



Type B1 (Single sided Parallel)



Type B2 (Double sided Parallel)



Type B3 (Single sided Parallel)

PARALLEL CURB RAMP DETAILS

NOTES

The running slope of the ramp is preferred to be 12:1 or flatter. In existing sidewalks, where the maximum ramp slope is not feasible due to site constraints (e.g. utility poles or vaults, right-of-way limits) it may be reduced as follows:

A) 10:1 for a max. rise of 6",
B) 8:1 for a max. rise of 3",
C) 6:1 over a max. run of 2'-0" for historic areas where a flatter slope is not feasible.

To prevent chasing the grade indefinately, the transition from exisiting sidewalk to the shaded curb ramp area is not required to exceed 15 feet in length.

While ramps may be skewed to the crosswalk, the entire lower landing area must foll within the cross walk that the ramp serves and cannot be located in the traveled lane of opposing traffic.

The counter slope of the gutter or street at the foot of a curb ramp, landing, or blended transitions shall be 20:1 ot flatter.

The bottom edge of the ramp shall change planes perpendicular to the landing.

The edge of the curb shall be flush with the edge of the adjacent pavement and gutter and surface slopes that meet grade breaks shall also be flush.

Ramp landings shall be 4' min. x 4' min. with a 50:1 or flatter cross slope and running slope.

See Sheet 3 for Sections.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Dick Bauer — ADMINISTRATOR — 10-15-10 DATE

STDS. ENGINEER: W. Bline

OFFICE OF ROADWAY ENGINEERING

THIS DRAWING REPLACES BP-7.1 DATED 1-19-07.

STANDARD ROADWAY CONSTRUCTION DRAWING
NEW CURB RAMPS
(with Detectable Warnings)

SCD NUMBER: BP-7.1

2 / 3

THE CITY'S STANDARD WHEEL CHAIR RAMP IS THE ODOT BP-7.1 WITH THE MODIFICATIONS NOTED.
SEE SHEET 4 OF 4 FOR CITY'S APPROVED TRUNCATED DOME PRODUCTS.

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MAY 2012

APPROVED BY: RMB

DRAWING FILE NAME: **ce_33.dwg**

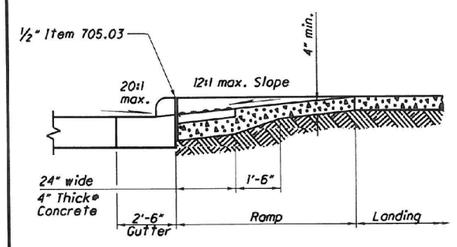
REVISIONS

DESCRIPTION	DATE	BY
REVISIONS	6/29/12	RMB

STANDARD DRAWING NO. 33

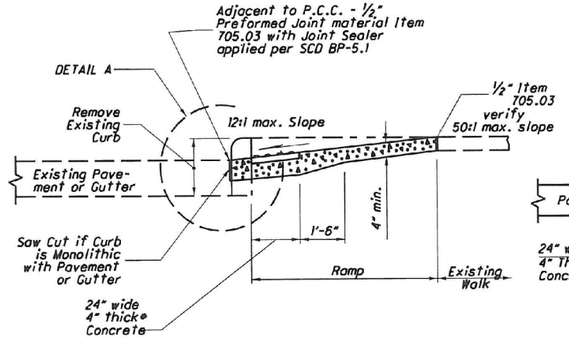
WHEEL CHAIR RAMP

SHEET 2 OF 4

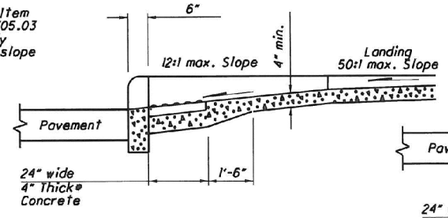


New gutter shown.

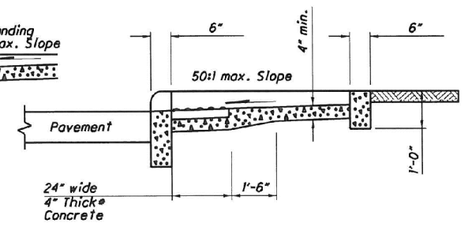
SECTION A-A
NORMAL DETAIL
See Sheet 2.



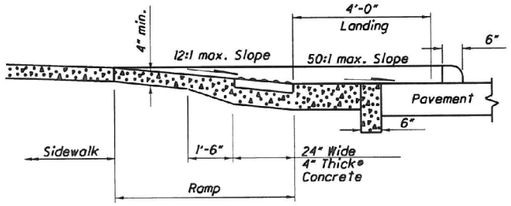
SECTION A-A
EXISTING WALK DETAIL
See Sheet 2.



SECTION B-B
See Sheet 2.

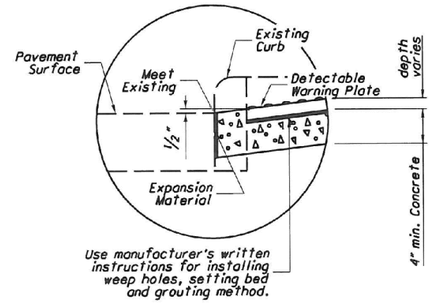


SECTION C-C
See Sheet 2.

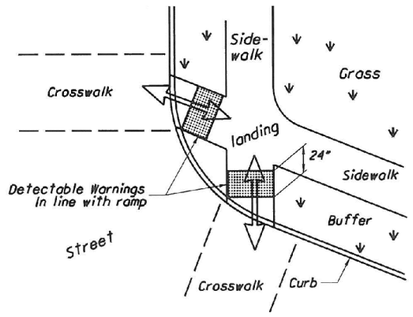


SECTION D-D
See Sheet 2.

*Where possible, pour ramp area integral with the curb, otherwise use 6" thick walk.



DETAIL A



DETECTABLE WARNING ALIGNMENT

DETECTABLE WARNINGS NOTES

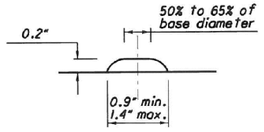
GENERAL: Detectable Warnings are a distinctive surface pattern of truncated domes which are detectable by cane or underfoot to alert people with vision impairments of their approach to streets and hazardous drop-offs.

PLACEMENT: Detectable warnings are to be installed at any location where pedestrians might cross paths with vehicular traffic lanes, such as the base of curb ramps or at blended curbs. A 24" strip of domes is to be installed for the full width of the ramp or walk. Typical street corner placement locations are shown on Sheet 1.

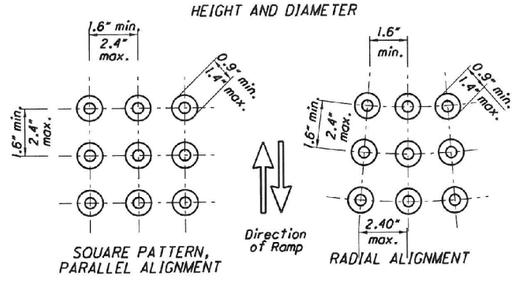
The depth of concrete underneath detectable warning products shall be a minimum of 4". See DETAIL A.

ALIGNMENT: Truncated domes should be aligned with the primary direction of the ramp as shown on the DETECTABLE WARNING ALIGNMENT Detail. Normally the detectable warnings should be flush with the back of the curb, but in skewed conditions at least one corner of the 24" strip should be adjacent to the back of curb. For non-standard layouts, detectable warning materials may have to be mitered and placed segmentally.

PRODUCTS & COLORS: Color of the detectable warnings should contrast with surrounding concrete walk and ramp. Black is not an acceptable color. Approved products and guidance on color may be found on the Office of Roadway Engineering Service's Detectable Warnings Approved List. Install products as per manufacturer's printed instructions.



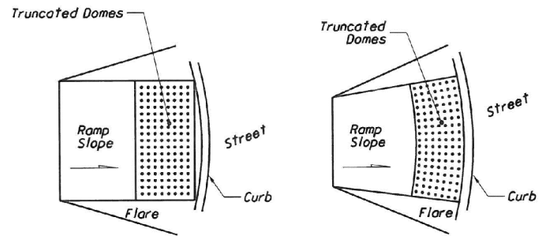
HEIGHT AND DIAMETER



SQUARE PATTERN, PARALLEL ALIGNMENT

RADIAL ALIGNMENT

TRUNCATED DOMES DETAILS



DOME ALIGNMENT ON RADIUSED CURB

SEE SHEET 4 OF 4 FOR CITY'S APPROVED TRUNCATED DOME PRODUCTS.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Dick Bryan — ADMINISTRATOR — 10-15-10 DATE

STDS. ENGINEER: M. Bline

OFFICE OF ROADWAY ENGINEERING

STANDARD ROADWAY CONSTRUCTION DRAWING
NEW CURB RAMPS (with Detectable Warnings)

SCD NUMBER: BP-7.1

THIS DRAWING REPLACES BP-7.1 DATED 1-19-07.

3 / 3

THE CITY'S STANDARD WHEEL CHAIR RAMP IS THE ODOT BP-7.1 WITH THE MODIFICATIONS NOTED.
SEE SHEET 4 OF 4 FOR CITY'S APPROVED TRUNCATED DOME PRODUCTS.

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MAY 2012

APPROVED BY: RMB

DRAWING FILE NAME: **ce_33.dwg**

REVISIONS

DESCRIPTION	DATE	BY
REVISIONS	6/29/12	RMB

STANDARD DRAWING NO. 33

WHEEL CHAIR RAMP

SHEET 3 OF 4

DETECTABLE WARNING DOMES

BRICK PAVERS

TRUNCATED DOME BRICK IS REQUIRED FOR ALL STREETSCAPE AREAS **IN THE CENTRAL BUSINESS DIST**RICT AS DETERMINED BY CITY ENGINEER'S OFFICE.

Brick Pavers will meet ASTM C 902 Class SX, Type 1, or
C 936, or C 1272 Type R. (SEE OPTION 3 and 4 FOR NON-BRICK)

Acceptable manufacturers and products are:

1) Whitacre-Greer Fireproofing Company,
1400 S. Mahoning Ave, Alliance, OH, 44601, (800) WG PAVER
ADA Paver, 4"x8"x2-1/4", Clear Red (Rustic) #30.

2) The Belden Brick Company
PO Box 20910, Canton, OH 44701 330-456-0031
City Line ADA Paver, Regimental Red 2-1/4"x4"x8" or 2-1/4"x8"x8"

OR APPROVED EQUAL.

Pavers will be laid on top of a 4" unreinforced concrete base. Setting bed to be mortared in accordance with manufacturer's instruction, or with a maximum 1/2" thick bed of latex modified cement mortar. SWEEP POLYMERIC SAND (TECHNI SEAL OR APPROVED EQUAL) INTO JOINTS. Joint width must not exceed 1/8" or be less than 1/16" wide.

Pavers shall be laid such that joints are level with adjoining joints so as to provide a smooth transition from brick to brick and brick to concrete surface.

The surface of any two adjacent units should not differ by more than 1/8" [3] in height. Bricks shall be placed in a running bond pattern. Face of all brick shall be clean of cement and protected so as to avoid chipping during constructionn.

PANELS, WET SET

REPLACEABLE TRUNCATED DOME PANELS SET IN WET CONCRETE MUST BE USED IN RAMPS **OUTSIDE THE CENTRAL BUSINESS DISTRICT**.

Acceptable manufacturers and prducts are:

1) Armorcast Products Company
North Hollywood, CA 818-982-3800
Armorcast Detectable Warning Panels (Wet Set Panels)
24"x24", 24"x36", 24"x48"; also 6'-15' Radius
Polymer Concrete, Red Brick color

2) ADA Solutions, Inc.
N. Billerica, MA 01862
Cast-in-Place Replaceable Tactile (Wet Set)
2'x3', 2'x4', 2'x5', and 2' w/radius
Glass and Carbon Composite, Brick Red color

OR APPROVED EQUAL

ADHESIVE MATS

REPLACEABLE TRUNCATED DOME MATS THAT SET ON CONCRETE RAMPS BY ADHESIVE WILL ONLY BE CONSIDERED IN THE EVENT AN EXISTING WHEEL CHAIR RAMP NEEDS DETECTABLE WARNING DOMES INSTALLED AND THE RAMP REQUIRES NO OTHER MODIFICATIONS. INSTALLATION IS SUBJECT TO THE CITY ENGINEER'S APPROVAL.

Acceptable manufacturers and prducts are:

1) Submit product specification, color and sample for review/approval by the City Engineer

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE: MAY 2012

APPROVED BY: RMB

DRAWING FILE NAME: **ce_33.dwg**

REVISIONS

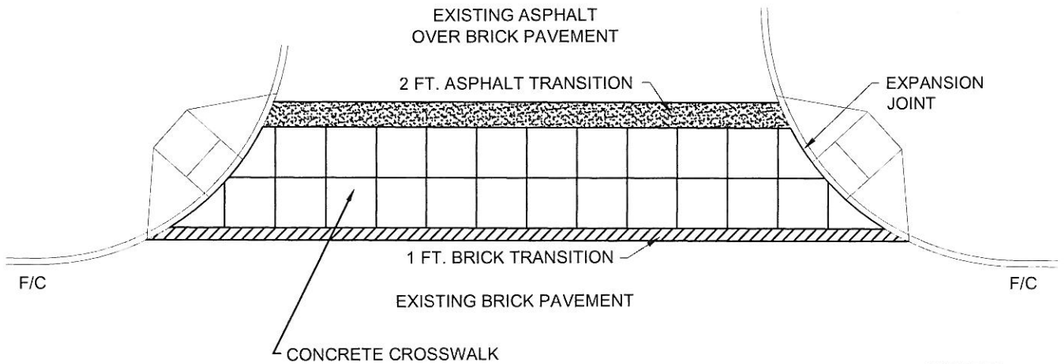
DESCRIPTION	DATE	BY
REVISIONS	6/29/12	RMB

STANDARD DRAWING NO. 33

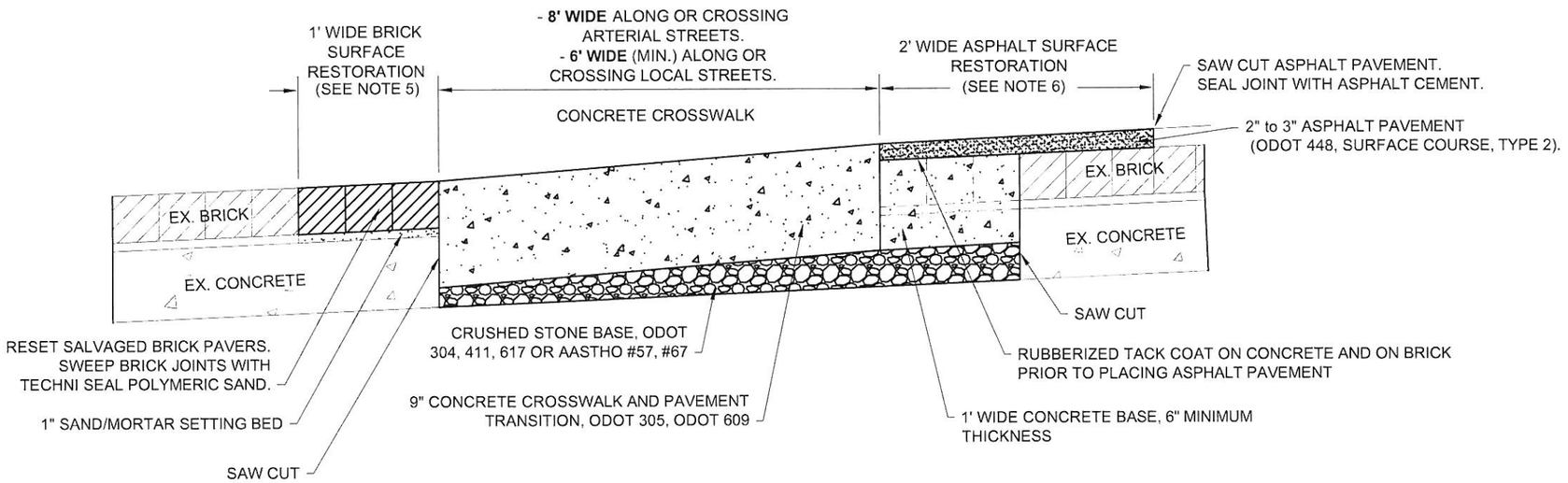
WHEEL CHAIR RAMP

SHEET 4 OF 4

PLAN VIEW



SECTION VIEW



NOTES:

1. CONCRETE CROSS WALKS MUST BE CONSTRUCTED IN THE ROADWAY WHEN EXISTING PAVEMENT IS DISTURBED WHERE BRICK ROADS TRANSITION TO ASPHALT ROADS BY OVERLAY OF ASPHALT ON BRICK PAVERS; UNLESS DETERMINED OTHERWISE BY THE CITY ENGINEER.
2. CROSS WALK CONSTRUCTION MUST CONFORM TO ODOT 608 AND THE CURRENT CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
3. SECTION PROFILE OF CROSS WALK TO BE FIELD DETERMINED BASED ON EXISTING ASPHALT AND BRICK PAVEMENT ELEVATIONS. PROFILE OF THE CROSSWALK MUST BE SET IN A MANNER THAT DOES NOT IMPEDE THE STORMWATER DRAINAGE.
4. DURING REMOVAL OF PAVEMENT FOR INSTALLATION OF NEW CONCRETE CROSS WALK, CONTRACTOR MUST STABILIZE BRICK PAVERS AND PREVENT BRICKS, THAT ARE TO REMAIN IN PLACE, FROM COMING LOOSE.
5. CONTRACTOR TO REPLACE BRICK PAVEMENT WITH SALVAGED BRICK SET ON A 6" CONCRETE BASE AND 1" SAND/MORTAR SETTING BED. REUSE OF EXISTING CONCRETE BASE UNDER BRICK IS ACCEPTABLE IF CITY ENGINEER DEEMS EXISITING CONCRETE BASE IS IN SATISFACTORY CONDITION; OTHERWISE NEW CONCRETE BASE MAY BE REQUIRED. SWEEP BRICK JOINTS WITH TECHNI-SEAL POLYMERIC SAND (OR APPROVED EQUAL). ALL BRICK PAVERS RESET MUST MEET THE GRADES ESTABLISHED BY THE ENGINEER. SURFACE ELEVATION FROM BRICK TO BRICK, OR BRICK TO CONCRETE MUST NOT EXCEED 1/8".
6. CONTRACTOR MUST PLACE TRANSITIONAL ASPHALT PAVEMENT (ODOT 448, SURFACE COURSE, TYPE 2) MATCHING THE SURFACE OF THE NEW CONCRETE CROSS WALK AND EXISTING ASPHALT PAVEMENT. ASPHALT PAVEMENT THICKNESS MUST NOT BE LESS THAN 2", OR GREATER THAN 3". ASPHALT PAVEMENT MUST BE SET ON A CONCRETE BASE WITH A MINIMUM THICKNESS OF 6". THE CONCRETE BASE MUST LOCK-IN THE EXISTING BRICK PAVERS. APPLY RUBBERIZED TACK COAT ON CONCRETE BASE AND BRICK BASE PRIOR TO INSTALLING ASPHALT PAVEMENT.
7. CONCRETE MATERIAL FOR CROSS WALK AND BASE MUST BE ODOT 499 CLASS 'C' CONCRETE WITH LIMESTONE AGGREGATE.
8. NO FOUNDRY SAND OR SLAG PERMITTED IN AGGREGATE BASE.
9. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

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APPROVED DATE: MAY 2012

APPROVED BY: RMB

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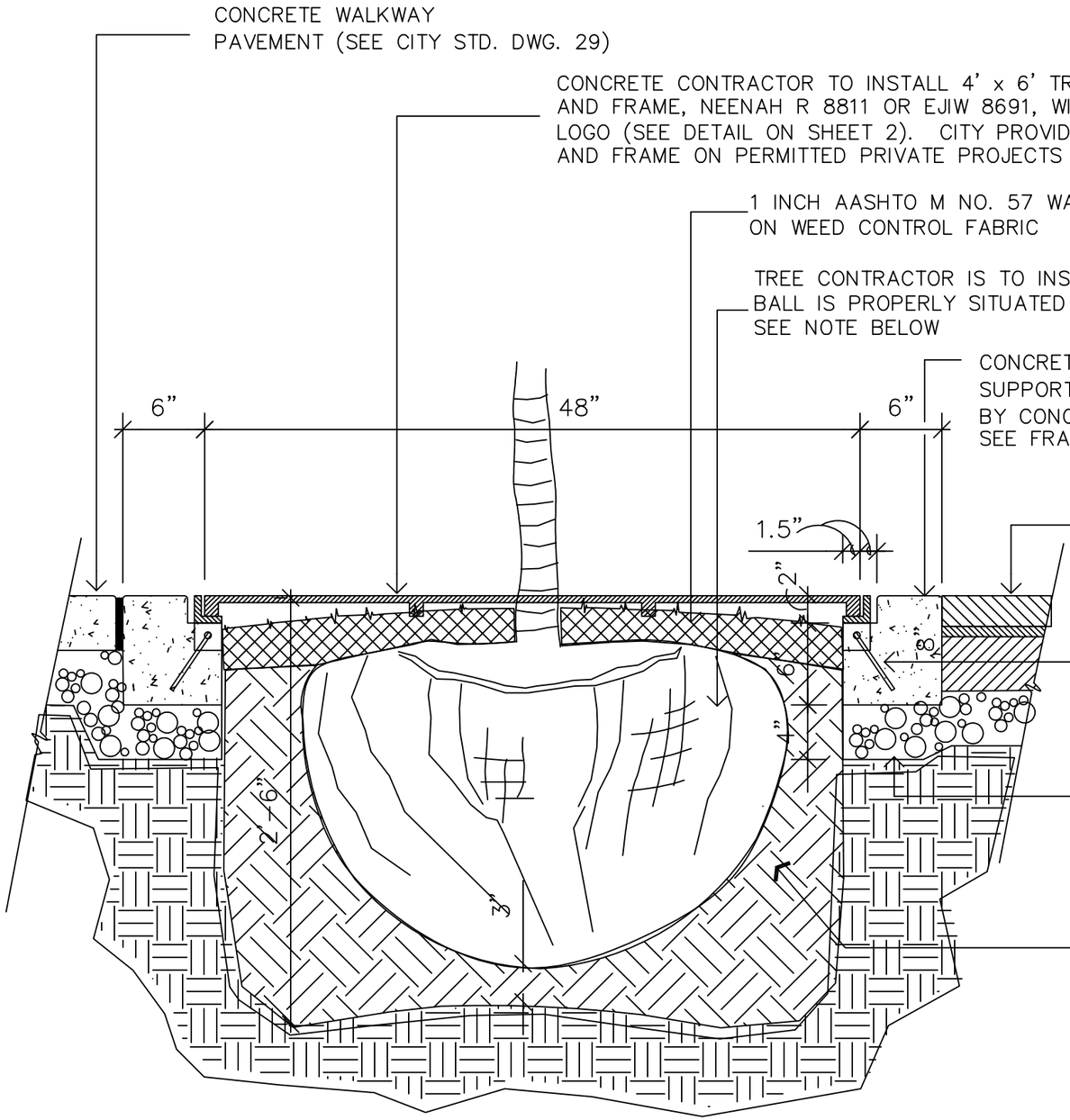
DESCRIPTION	DATE	BY
REVISIONS	7/20/12	RMB

STANDARD DRAWING NO. 34

CONCRETE CROSSWALK AND PAVEMENT TRANSITION



NOTES:

– CONCRETE COLLAR TO BE FORMED USING 2 X 6 (FRAME SUPPORTED METHOD) OR 2 X 8 (INSIDE FORM METHOD)

– ASSURE THAT CONCRETE COMPLETELY FILLS FORMS W/ NO VOIDS. AFTER FORM REMOVAL GROUT ALL HONEYCOMB VOIDS.

– TREE BOX TO BE CLEARED TO LIMIT SHOWN BY CONCRETE CONTRACTOR. CONTRACTOR TO SET GRATE AND INSURE PROPER FIT WITH NO ROCKING OR BINDING. COVER OPENING TO PREVENT PEDESTRIAN TRIP HAZARD.

– BIO BARRIER II WEED CONTROL IS TO BE PLACED UNDER AASHTO M NO. 57 GRAVEL PER MFR. SPECS. BY TREE CONTRACTOR ONLY IF SPECIFIED IN BID TAB OR RFP.

– GATOR BAGS TO BE PROVIDED AND FILLED BY TREE CONTRACTOR. TREE TO BE GUARANTEED FOR TWO GROWING SEASONS.

BURLAP WRAP AND WIRE RETAINER IS TO BE REMOVED TO A MIN. DEPTH OF 1/2 OF THE BALL DEPTH. REMOVE FROM BOX. REMOVE ALL CORDING FROM AROUND TREE TRUNK AND BALL. ROOT FLARE IS TO BE EXPOSED FOR INSPECTION TO ENSURE NO GIRDLING AND PROPER PLANTING DEPTH.

304 (M) – NO FOUNDRY SAND, ACBFS, GS OR OTHER SLAG PERMITTED

– CONCRETE CONTRACTOR IS TO PROVIDE A UNIT LUMP SUM PRICE FOR THE FORMING AND PLACING OF THE CONCRETE COLLAR COMPLETE WITH THE SETTING OF THE FRAME AND GRATE AND EXCAV. AND CLEARING OF THE TREE PIT.

– TREE CONTRACTOR TO PROVIDE AND PLANT TREES INCLUDING ALL MATERIALS SPECIFIED IN PROPOSAL.

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APPROVED DATE: FEB. 2012

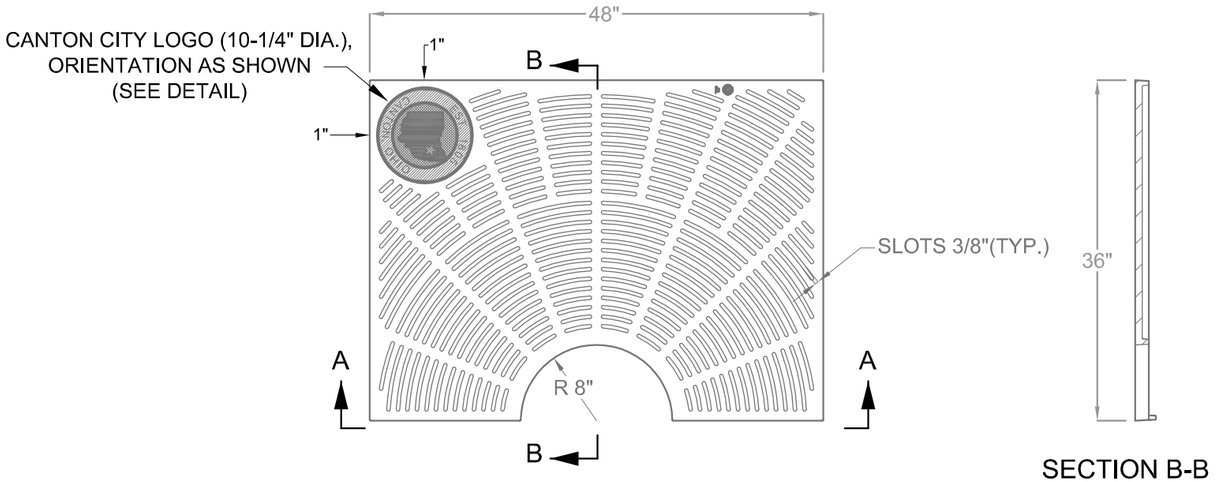
APPROVED BY: JTD

DRAWING FILE NAME: **ce_40-47_STREETSCAPE.dwg**

REVISIONS		
DESCRIPTION	DATE	BY
REVISED TREE GRATE, ADD CITY LOGO	APRIL 2014	RMB

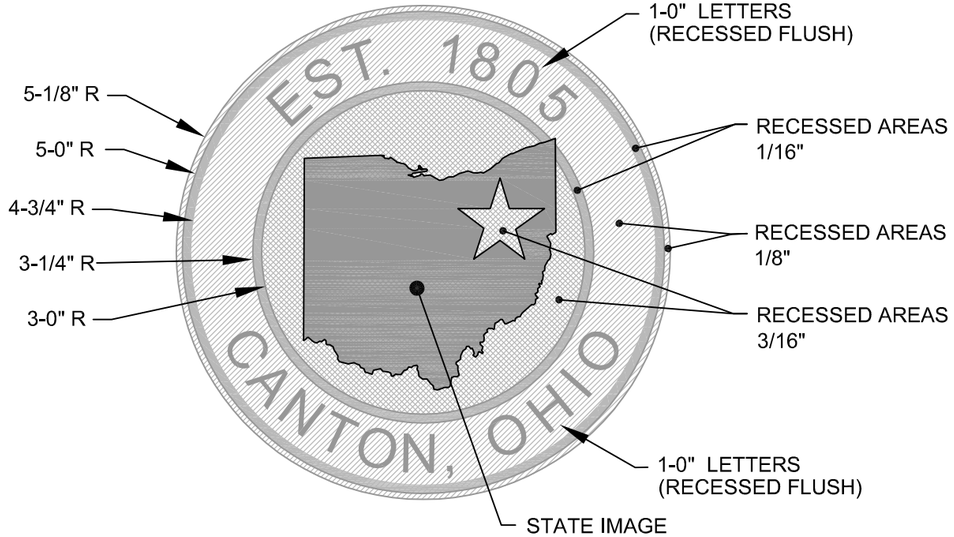
STANDARD DRAWING NO. 43

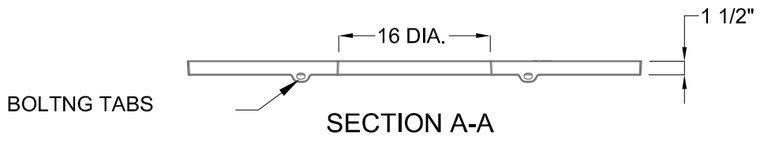
TREE FRAME & GRATE
CONSTRUCTION DETAILS



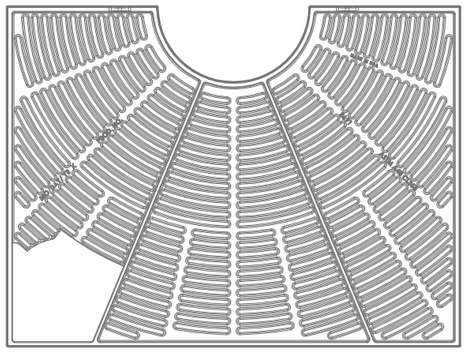
TOP VIEW

SECTION B-B





SECTION A-A



BOTTOM VIEW

CITY LOGO, TREE GRATES
DETAIL

NOTES:

1. TREE GRATES TO BE CAST OF GRAY IRON IN COMPLIANCE WITH ASTM SPEC. ASTM A-48 CLASS 35. CASTINGS SHALL BE OF THE HEAVY DUTY RATING. GRATES MUST INCLUDE CANTON CITY LOGO AS SHOWN.

2. FRAMES FOR TREE GRATES TO BE MANUFACTURED OF STEEL DESIGNED FOR HEAVY LOADS. ENTIRE FRAMES MUST BE COATED WITH ONE COAT OF BLACK PAINT SUITABLE FOR FABRICATED STEEL.

3. APPROVED TREE GRATE AND FRAME PRODUCTS:
   -EAST JORDAN 8691
   -NEENAH R 8811
   -OR APPROVED EQUAL.

4. CONTACT CITY ENGINEER FOR CAD DRAWING OF CITY LOGO.

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APPROVED DATE: FEB. 2012

APPROVED BY: JTD

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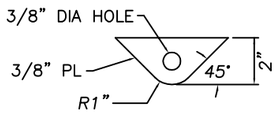
DESCRIPTION	DATE	BY
REVISED TREE GRATE, ADD CITY LOGO	APRIL 2014	RMB

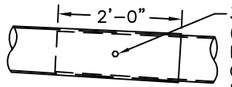
STANDARD DRAWING NO. 43

TREE FRAME & GRATE
CONSTRUCTION DETAILS

NOTE:
SEE 50312–B19 – SHT. 2 OF 5
FOR TOP ORIENTATION VIEW



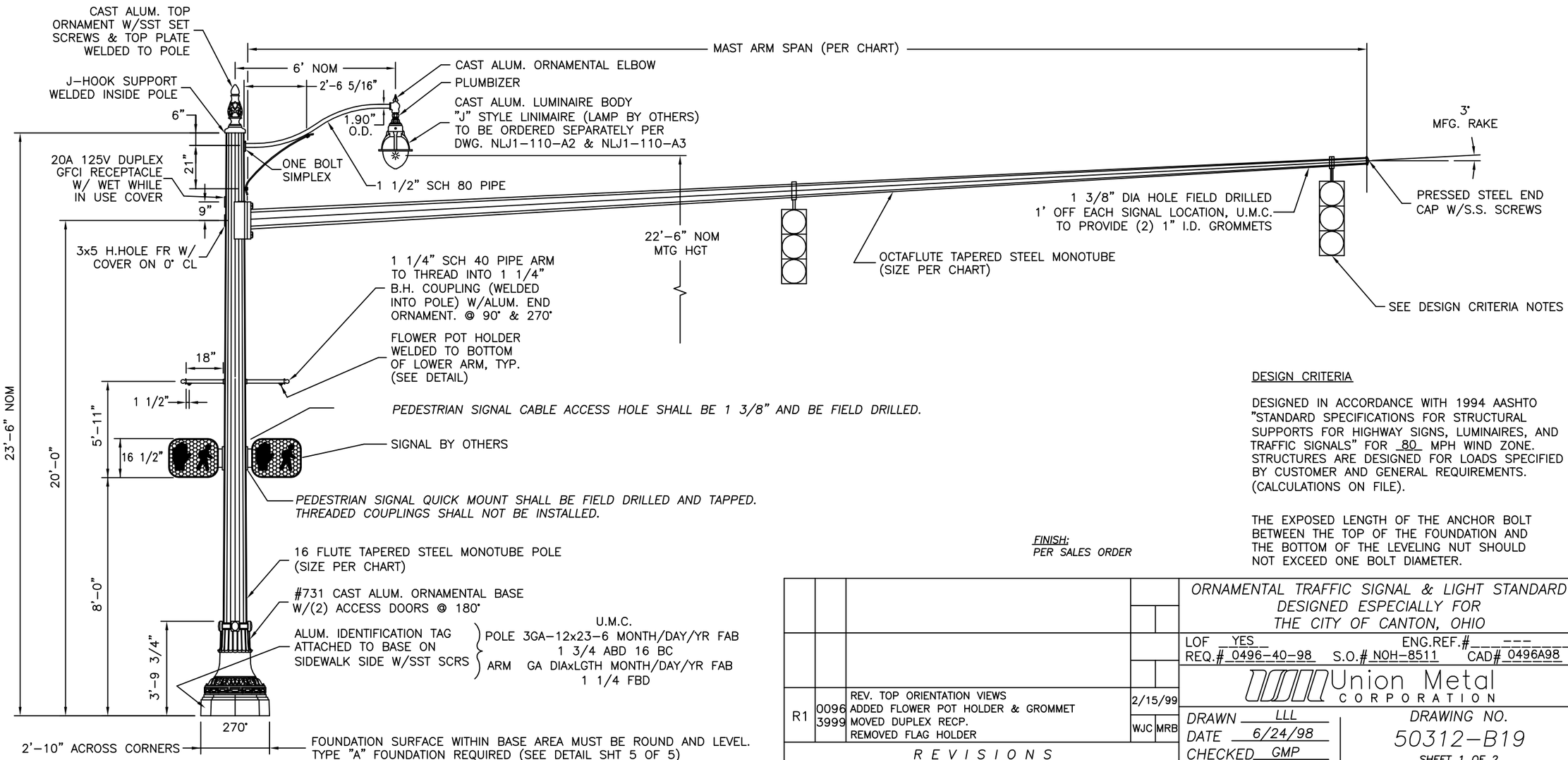
HOLDER FOR FLOWER POT



3/4" DIA GALV STUD WITH (2) "ANCO" LOCKNUTS, FACTORY DRILL 1" HOLE IN OUTBOARD TUBE, FIELD DRILL INBOARD TUBE TO ASSURE SNUG FIT.

TELESCOPIC FIELD JOINT FOR 46' ARM ONLY

MATERIAL SPECIFICATIONS
TUBES: CHEM. & PHYSICAL PROP. OF ASTM A595 GR A
PLATE,BAR: ASTM A709 GR 36
ANCHOR BOLTS: ASTM F1554 GR55 TOP END GALV TO A153
ANCHOR BOLT NUTS: ASTM A563 GR A GALV TO A153
MISC. HDWE: (STN STL) AISI 300 SERIES (18–8)
POLE TOP: CAST ALUMINUM–AA319F
TRAFFIC ARM CONN. BOLTS: ASTM–A325
H.H. FRAME: ASTM–A576
H.H. COVER: C1010 STEEL
PEDESTAL BASE: CAST ALUMINUM SPLIT BASE:A319F
STEEL PIPE: ASTM–A53 GR B OR A501
GALV & FINISH PAINT PER SALES ORDER.



FINISH:
PER SALES ORDER

DESIGN CRITERIA

DESIGNED IN ACCORDANCE WITH 1994 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" FOR 80 MPH WIND ZONE. STRUCTURES ARE DESIGNED FOR LOADS SPECIFIED BY CUSTOMER AND GENERAL REQUIREMENTS. (CALCULATIONS ON FILE).

THE EXPOSED LENGTH OF THE ANCHOR BOLT BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE BOLT DIAMETER.

R1	0096 3999	REV. TOP ORIENTATION VIEWS ADDED FLOWER POT HOLDER & GROMMET MOVED DUPLEX RECP. REMOVED FLAG HOLDER	2/15/99 WJC	MRB

R E V I S I O N S

ORNAMENTAL TRAFFIC SIGNAL & LIGHT STANDARD
DESIGNED ESPECIALLY FOR
THE CITY OF CANTON, OHIO

LOF YES ENG.REF.# ---
REQ.# 0496–40–98 S.O.# NOH–8511 CAD# 0496A98

Union Metal CORPORATION

DRAWN LLL
DATE 6/24/98
CHECKED GMP

DRAWING NO.
50312–B19
SHEET 1 OF 2

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CANTON, OHIO
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APPROVED DATE: APRIL 2012

APPROVED BY: EEM

DRAWING FILE NAME:
ce_61-65_LIGHTPOLES.dwg

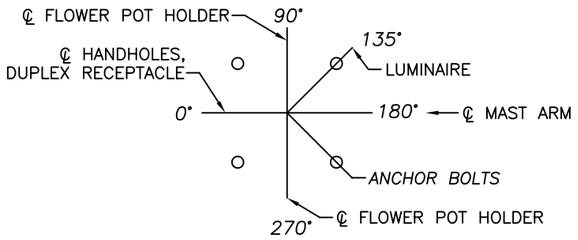
REVISIONS

DESCRIPTION	DATE	BY

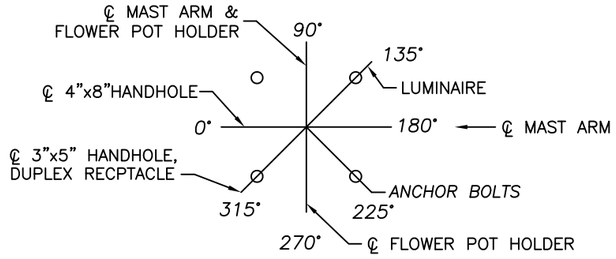
STANDARD DRAWING NO. 61

NOSTALGIC POLE FOUNDATION & WIRING DIAGRAM

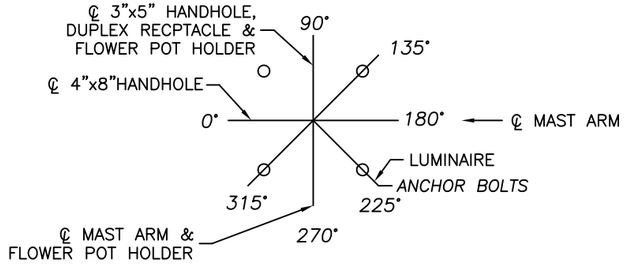
SHEET 1 OF 1



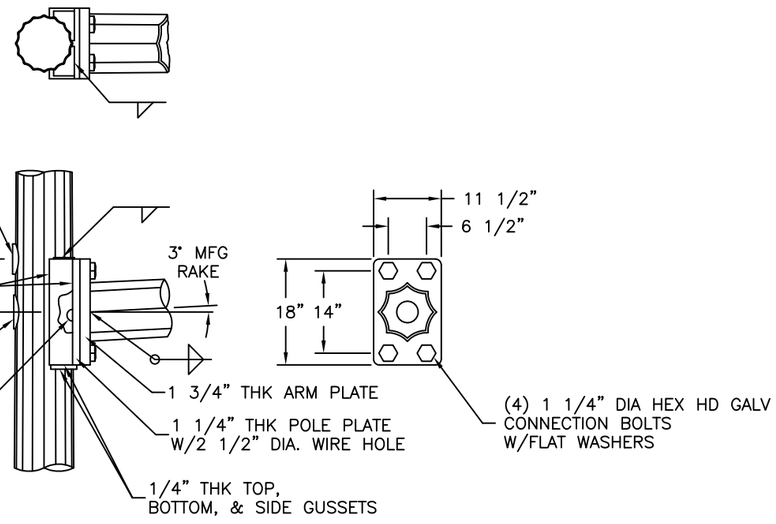
TOP VIEW ORIENTATION
SINGLE MAST ARMPOLES



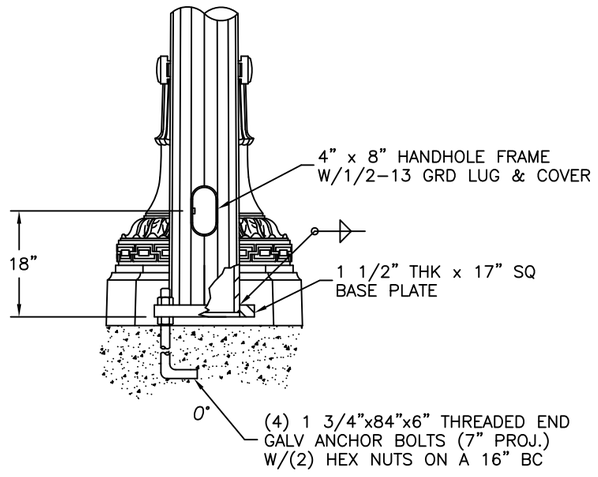
TOP VIEW ORIENTATION
TWIN MAST ARM DESIGNS
50312–Y99 THRU –Y102



TOP VIEW ORIENTATION
TWIN MAST ARM DESIGN
50312–Y103



ARM CONNECTION DETAIL
SINGLE ARM CONNECTION SHOWN



BASE DETAIL

FINISH:
PER SALES ORDER

REVISIONS

ORNAMENTAL TRAFFIC SIGNAL & LIGHT STANDARD
DESIGNED ESPECIALLY FOR
THE CITY OF CANTON, OHIO

LOF ---- ENG.REF.# ----
REQ.# 0496-40-98 S.O.# NOH-8511 CAD# 0496B98

Union Metal CORPORATION

DRAWN LLL
DATE 6/24/98
CHECKED GMP

DRAWING NO.
50312–B19
SHEET 2 OF 5

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CANTON, OHIO
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APPROVED DATE: APRIL 2012

APPROVED BY: EEM

DRAWING FILE NAME:
ce_61-65_LIGHTPOLES.dwg

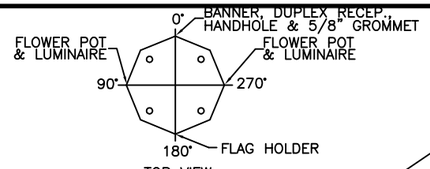
REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 62

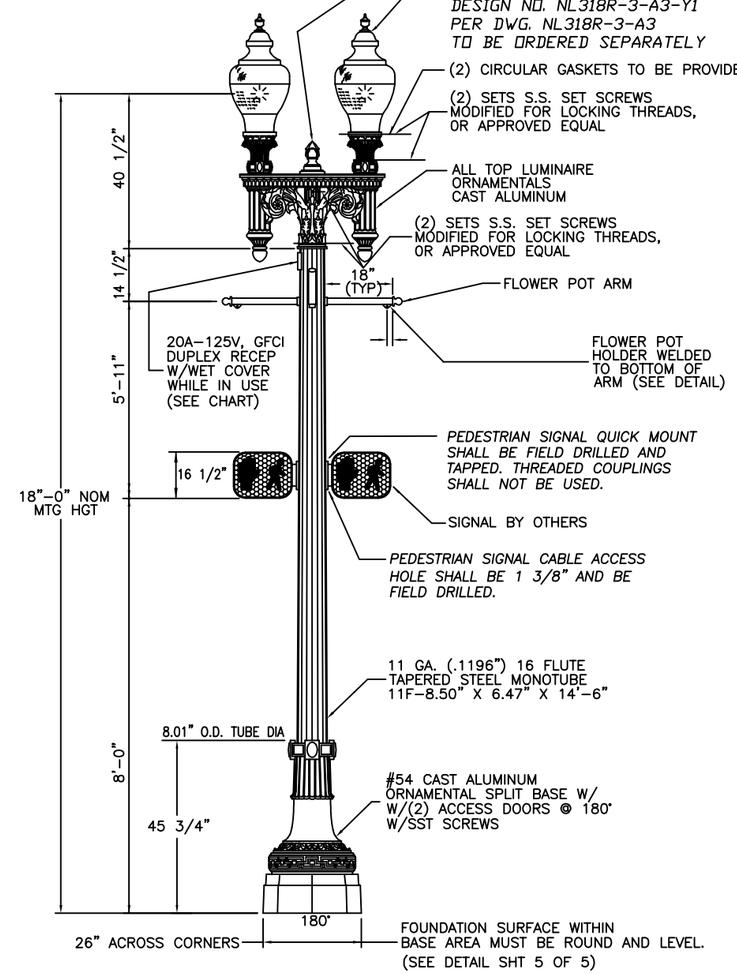
NOSTALGIC POLE FOUNDATION & WIRING DIAGRAM

SHEET 1 OF 1

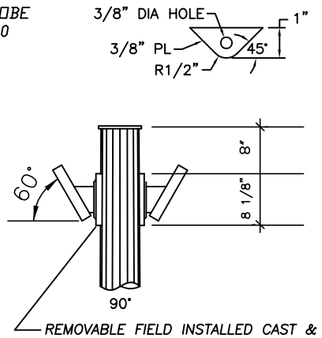


TOP VIEW

DESIGN NO.	BANNER ARMS
B2473-54-B14-Y1	YES
B2473-54-B14-Y2	NO

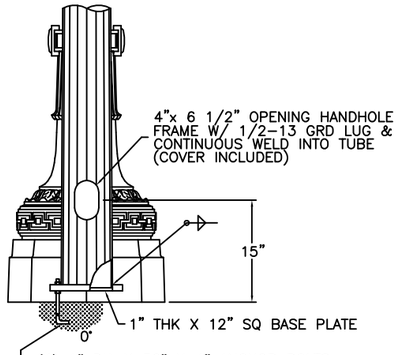


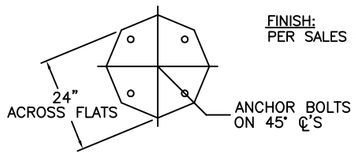
HOLDER FOR FLOWER POT



REMOVABLE FIELD INSTALLED CAST & FABRICATED ALUMINUM FLAGHOLDER SECURED BY (2) SS 3/8" DIA. CAP SCREWS W/FLAT WASHER & LOCKWASHERS INTO HEX NUTS WELDED TO POLE CENTERED OVER 1/2" DIA. HOLES OPTIONAL PER DESIGN NO.

NOTE:
THE CONTRACTOR SHALL PROVIDE PER LIGHT POLE:
1 HEAVY DUTY NYLON 3' X 5' US FLAG CONSTRUCTED WITH EMBROIDERED OR APPLIQUED STARS, SEWN STRIPS AND REINFORCED FLY ENDS. MADE OF NYLON, MANUFACTURED FOR OUTDOOR USE. MADE IN THE USA.
1 6' X 1" 1 PIECE FIBER GLASS POLE.
1 NEV-R-WRAP FLAG UNFURLER THAT FITS 1" POLE DIAMETER.
1 GOLD VINYL SLIP FIT BALL THAT FITS 1" POLE DIAMETER.





FINISH:
PER SALES ORDER.

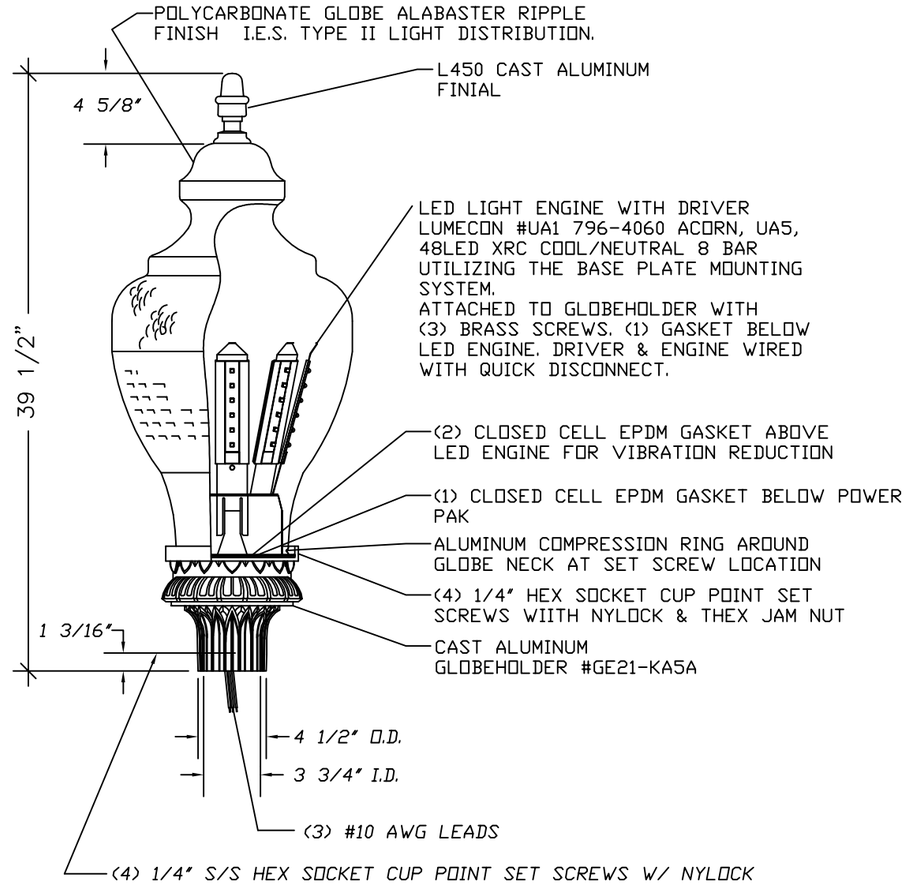
STATE: STATE	REQ# / SO# : REQ	REV	DESCRIPTION	DATE	REV BY	CHK BY
PROJECT NAME: PROJ-NAME			REVISIONS			

TITLE_1
TITLE_2

Union Metal Corporation

DESIGNED BY	CHECKED BY	DATE	SCALE	ENG REF
DGNR	EMM	DATE	SCALE	ENG_REF

DRAWING-NUMBER | REVISION REV | SHEET SHT OF SHTS



NOTES:
1. GLOBEHOLDER & FINIAL POWDER COATED CITY OF CANTON CBD GREEN.
2. GLOBE STREET SIDE POSITIONED BETWEEN TWO LED BARS. STREET SIDE OF LUMINAIRE MARKED ON OUTSIDE OF GLOBEHOLDER.

STATE: STATE	REQ# / SO# : REQ	REV	DESCRIPTION	DATE	REV BY	CHK BY
PROJECT NAME: PROJ-NAME			REVISIONS			

NOSTALGIA LUMINAIRE NL318R WITH LED

Union Metal Corporation

DESIGNED BY	CHECKED BY	DATE	SCALE	ENG REF
DGNR	EMM	DATE	SCALE	ENG_REF

DRAWING-NUMBER | REVISION REV | SHEET SHT OF SHTS

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APPROVED DATE: MARCH 2014

APPROVED BY: EEM

DRAWING FILE NAME:
ce_61-65_LIGHTPOLES.dwg

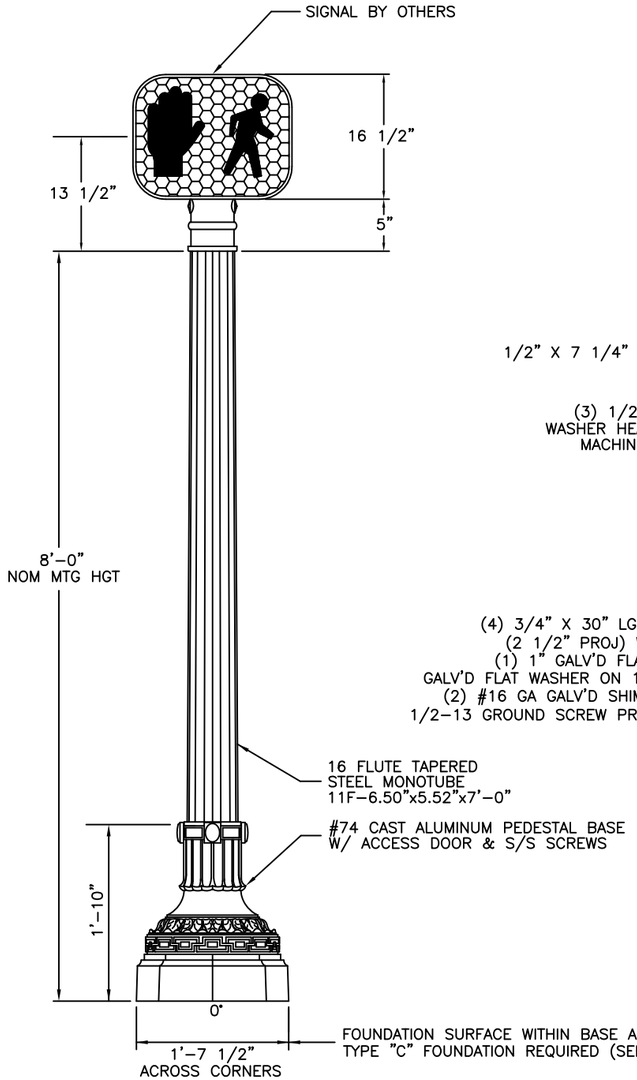
REVISIONS

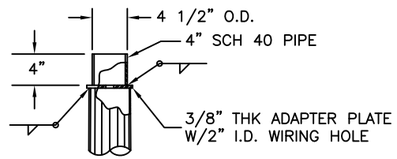
DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 63

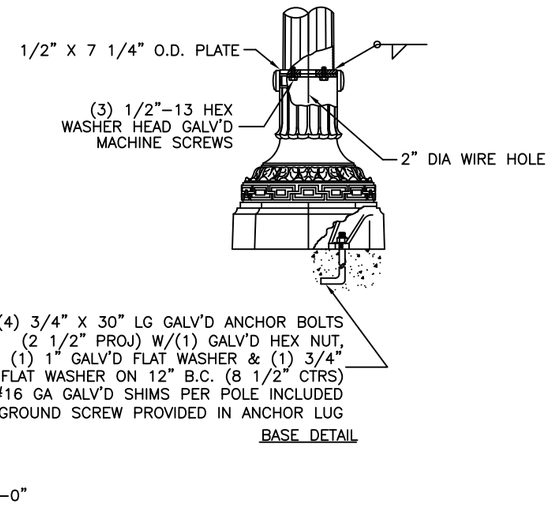
NOSTALGIA LIGHT POLE & LUMINAIRE

SHEET 1 OF 1

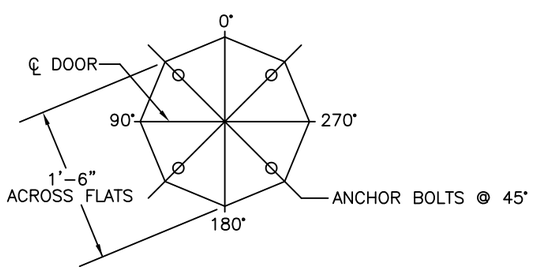


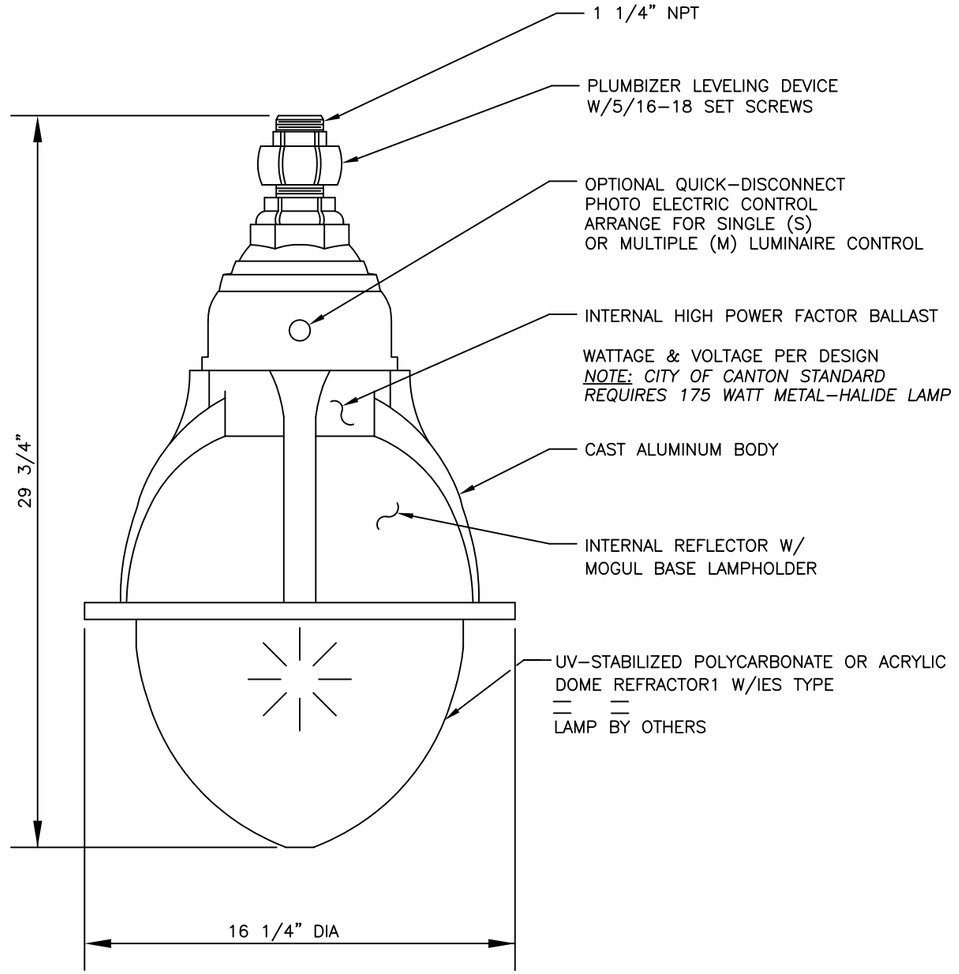


TENON DETAIL



BASE DETAIL





WEIGHT 40 LBS MAX EPA 1.2 SQ FT

ORNAMENTAL PEDESTRIAN POLE
DESIGNED FOR CANTON, OHIO
U.M.C. DESIGN NO. P2000-74-B9-Y1

LOF ---
REQ.# 0329-40-98 S.O.# ---
ENG.REF.# ---
CAD# 0329C98

Union Metal CORPORATION

DRAWN WJC
DATE 4/24/98
CHECKED GMP

DRAWING NO.
N2000-74-B9

"J" STYLE LUMINAIRE W/PLUMBIZER

UNION METAL CORPORATION

SCALE
DWG. CAS
DATE 10-28-94
CHK'D MRB

DRAWING NO.
NLJ1-110-A2

OFFICE OF THE CITY ENGINEER
CANTON, OHIO
DANIEL J. MOEGLIN, P.E., CITY ENGINEER
2436 30th St. NE 44705 : 330-489-3381 : www.cantonohio.gov/engineering

APPROVED DATE: APRIL 2012

APPROVED BY: EEM

DRAWING FILE NAME:
ce_61-65_LIGHTPOLES.dwg

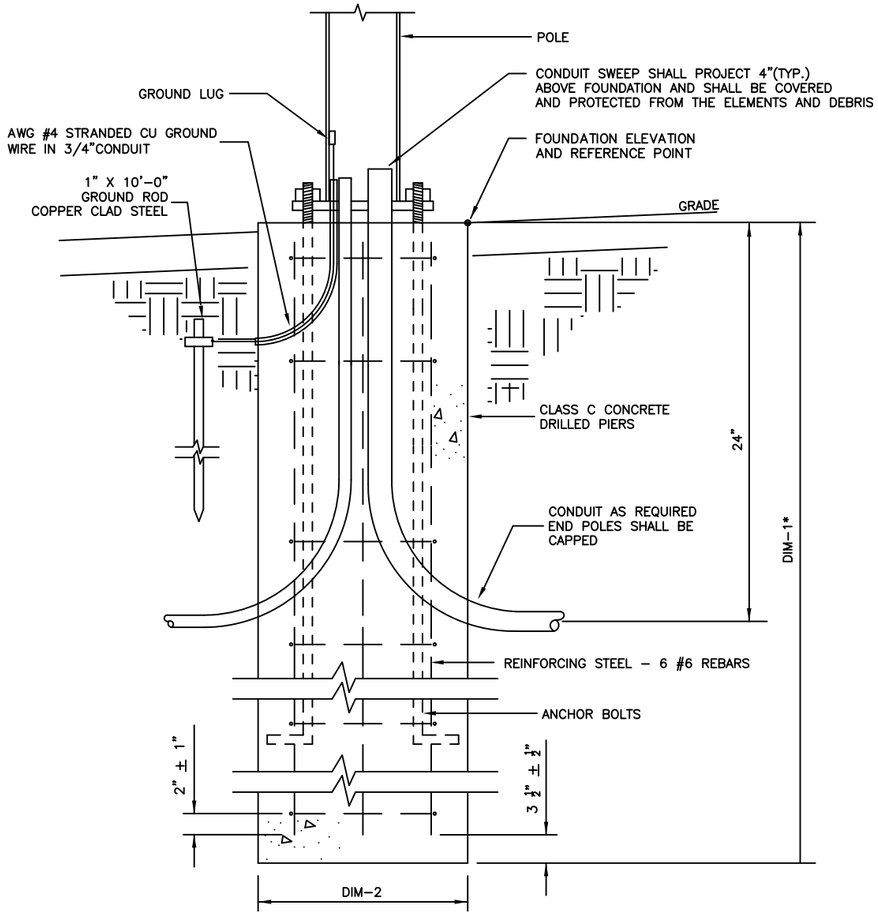
REVISIONS

DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 64

NOSTALGIC POLE FOUNDATION & WIRING DIAGRAM

SHEET 1 OF 1



NOSTALGIC FOUNDATION DETAIL

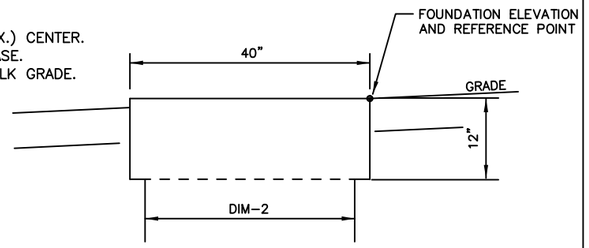
NO SCALE

NOTES:

1. ALL FOUNDATIONS SHALL BE DRILLED PIERS TO AVOID DISTURBING SURROUNDING SOIL. A TEMPORARY STEEL CASING MAY BE REQUIRED. IF UTILITIES OR ANOTHER CONFLICT IS IN CLOSE PROXIMITY TO THE FOUNDATION, THEN THOSE FOUNDATIONS MAY HAVE TO BE EXCAVATED BY HAND.
2. ANCHOR BOLT PATTERN SHALL BE PROVIDED BY POLE MANUFACTURER (U.M.C.).
3. REINFORCING STEEL SHALL BE ASSEMBLED IN CAGES USING #4 TIES AT 24" (MAX.) CENTER.
4. FOUNDATION TOP SHALL BE ROUND AND LEVEL TO ACCOMMODATE DECORATIVE BASE.
5. TOP OF FOUNDATION SHALL BE AT LEAST 1" ABOVE PROJECTED FINISHED SIDEWALK GRADE.

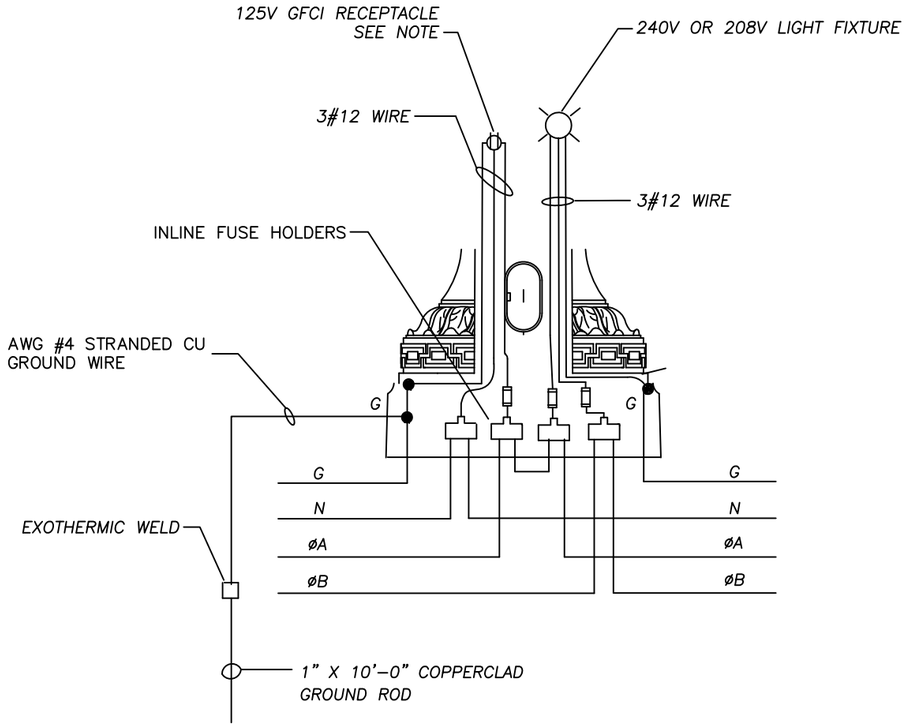
FOUNDATION	DIM-1*	DIM-2
SIGNAL (16" BOLT CIRCLE)	9'-0"	36"
SIGNAL (>16" BOLT CIRCLE)	11'-0"	36"
LUMINARIES	6'-0"	30"
PEDESTRIAN	4'-0"	24"

* MINIMUM DEPTH MAY VERY BASED ON SOIL CONDITION.



FOUNDATION CAP DETAIL

CAP FOR SIGNAL POLE WITH >16" BOLT CIRCLE. CAP IS NECESSARY TO ACCOMODATE DECORATIVE BASE.



POLE WIRING DIAGRAM

NO SCALE

NOTE:

1. THE COST FOR WIRING TO ALL NOSTALGIA LUMINARIES AND RECEPTACLES SHALL BE INCIDENTAL TO THE NOSTALGIA BID ITEMS. ALL WIRING IN POLES AND CONDUITS TO LIGHTS AND RECEPTACLES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. ALL WIRING INTO EACH NOSTALGIA POLE BASE SHALL BE NO. 6 AWG WIRE AND CONNECTED TO IN-LINE FUSE HOLDERS. THE COST FOR THIS WIRE SHALL BE INCIDENTAL TO THE NOSTALGIA BID ITEMS.

3. IN-LINE FUSE HOLDERS SHALL BE BUSSMAN (HEB-AW-RYC). INSTALL FUSES IN PHASE LINES AND SOLID LINK IN NEUTRAL (HET-AW-RYC) FOR GROUND USE SPLIT BOLT CONNECTOR. COPPER GROUND CABLE SHALL BE EXOTHERMICALLY WELDED TO THE GROUND ROD. RUN CABLE FREE END THROUGH 3/4" EMT AND CONNECTED AS SHOWN IN THE POLE WIRING DIAGRAM. THE COST FOR THE IN-LINE FUSE HOLDERS AND ALL RELATED ITEMS SHALL BE INCIDENTAL TO THE NOSTALGIA BID ITEMS.

4. THE POLE RECEPTACLE SHALL BE ALTERNATELY WIRED TO PHASE A AND PHASE B AS SHOWN IN THE POLE WIRING DIAGRAM.

5. FOR LIGHTS, USE 5 AMP FUSES. FOR RECEPTACLES, USE 10 AMP FUSES. AMP RATINGS SHALL BE BASED UPON 75 DEGREE C RATINGS.

6. UNLESS OTHERWISE NOTED IN THESE PLANS, ALL WIRING SHALL BE MINIMUM NO. 12 AWG, COPPER, 600 VOLT RATED WITH THE EXCEPTION OF NO. 14 AWG, COPPER SHALL BE PERMISSIBLE FOR CONTROL CIRCUITRY. THE FOLLOWING SHALL APPLY TO ALL WIRING:

A. ALL WIRING SHALL BE STRANDED "XHHN/XHWN".
B. UNDERGROUND BRANCH CIRCUIT WIRING SHALL BE "XHHW".

7. CONDUCTORS SHALL BE PULLED FROM LIGHT POLE TO LIGHT POLE AND FROM LIGHTING CONTROL PANEL TO LIGHT POLE WITHOUT SPLICES.

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APPROVED DATE: MARCH 2014

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REVISIONS

DESCRIPTION	DATE	BY
MODIFIED DIMS AND OTHER CHANGES	4/29/14	NJL

STANDARD DRAWING NO. 65

NOSTALGIC POLE FOUNDATION & WIRING DIAGRAM

SHEET 1 OF 1