Tipp City

Engineering Standard Drawings & Details

Approved: John H. Donnelly **Date:** June 1, 2015

John H. Donnelly PE – City Engineer/Service Director

Adopted BY City Council on June 1, 2015

RESOLUTION 29-15

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THIS MANUAL HAS BEEN PREPARED TO AID ENGINEERS AND DEVELOPERS IN THE PREPARATION OF DEVELOPMENT PLANS AND ENGINEERING DESIGN AND TO INFORM INTERESTED PERSONS OF THE PROCEDURES AND STANDARDS FOR THE CITY OF TIPP CITY, OHIO. IT IS ALSO INTENDED TO BE USED DURING RECONSTRUCTION OR REPLACEMENT OF EXISTING FACILITIES OR UTILITY CONSTRUCTION WITHIN THE CITY RIGHT-OF-WAY. THE RULES, STANDARDS, SPECIFICATIONS, CRITERIA, ETC. ARE TO SUPPLEMENT THE ZONING REGULATIONS AND SUBDIVISION REGULATIONS OF THE CITY OF TIPP CITY.

IT IS NOT THE INTENT OF THIS MANUAL TO TAKE AWAY FROM THE DESIGNING ENGINEER ANY RESPONSIBILITY FOR THE TECHNICAL ADEQUACY OF THIS DESIGN OR FREEDOM TO USE HIS ENGINEERING JUDGEMENT AND DISCRETION. IT IS RECOGNIZED THAT MATTERS OF ENGINEERING DESIGN CANNOT BE SET OUT IN WRITING TO COVER ALL SITUATIONS, HOWEVER, THE DESIGN STANDARDS AS SET OUT HEREIN REPRESENT GOOD ENGINEERING PRACTICE. ANY DESIGN METHODS OR CRITERIA DIFFERENT THAN THAT LISTED WILL RECEIVE CONSIDERATION FOR APPROVAL, PROVIDED THE PROPOSED VARIANCES AND THE REASONS FOR THEIR USE ARE SUBMITTED TO THE CITY OF TIPP CITY.

THE CITY OF TIPP CITY, AT ANY TIME DURING DESIGN OR CONSTRUCTION, SHALL HAVE THE AUTHORITY TO MODIFY ANY ENGINEERING OR CONSTRUCTION DETAIL, WHENEVER REQUIRED FOR THE PROTECTION OF THE PUBLIC INTEREST.

THOUGH THE CITY OF TIPP CITY HAS NO JURISDICTION IN AREAS OUTSIDE OF THE CORPORATION LIMITS, THE CITY STRONGLY RECOMMENDS THAT ANY DEVELOPMENT CONSTRUCTED WITHIN CLOSE PROXIMITY OF THE CITY BE DESIGNED AND CONSTRUCTED TO THESE STANDARDS. THIS WILL HELP ENSURE THAT, IF THE DEVELOPMENT IS INCORPORATED INTO THE CITY, THE DEVELOPMENT WILL BE ACCEPTED BY THE CITY WITHOUT ADDITIONAL UPGRADES. IF A DEVELOPMENT OR RESIDENCE IS ANNEXED, ALL STREETS AND UTILITIES MUST BE BROUGHT UP TO CITY STANDARDS AT THE DEVELOPER/OWNER'S OR HOMEOWNERS'S EXPENSE. FURTHERMORE, IF A DEVELOPMENT OR RESIDENCE OUTSIDE OF THE CORPORATION LIMITS OF THE CITY WILL BE CONNECTED TO CITY UTILITIES, THE UTILITIES WILL BE CONSTRUCTED TO CITY STANDARDS AND SPECIFICATIONS.

THE CITY OF TIPP CITY, AT THEIR DISCRETION, MAY REQUEST THAT INFRASTRUCTURE AND UTILITY FACILITIES IN ANY PARTICULAR DEVELOPMENT BE INSTALLED TO ACCOMMODATE FUTURE EXPANSION WITHIN THE CITY. IF THIS IS REQUESTED, THE CITY WILL EVALUATE THE DEVELOPER'S ELIGIBILITY TO BE *COMPENSATED FOR THE COST DIFFERENCE TO OVERSIZE PARTICULAR* INFRASTRUCTURE ITEMS PER THE SUBDIVISION REGULATIONS OF THE CITY.

THE STANDARD SPECIFICATIONS OF THE CITY OF TIPP CITY AND THE STANDARD SPECIFICATIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION INCLUDING CHANGES AND SUPPLEMENTS SHALL GOVERN ALL IMPROVEMENTS.

300 - ROADWAYS

500 - GENERAL

600 - STORM DRAINAGE

800 - WATER DISTRIBUTION

900 - SANITARY SEWERS

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

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REVISIONS:

DATE APPROVED: MARCH 2015

STREET FUNCTIONAL CLASSIFICATIONS

A. ARTERIAL

A GENERAL TERM DENOTING A HIGHWAY PRIMARILY FOR THROUGH TRAFFIC, CARRYING HEAVY LOADS AND LARGE VOLUMES OF TRAFFIC, USUALLY ON A CONTINUOUS ROUTE.

B. COLLECTOR

STREET DESIGNED TO CONDUCT TRAFFIC FROM LOCAL STREETS TO ARTERIALS.

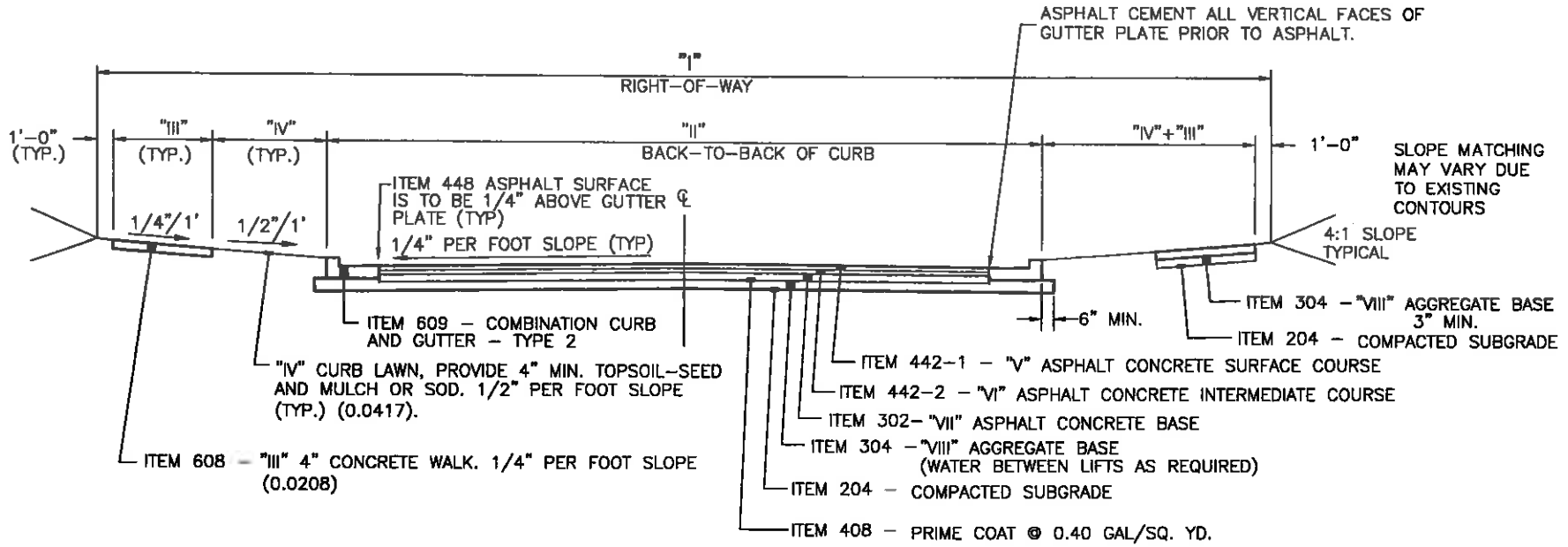
C. MINOR

A STREET DESIGNED TO PROVIDE ACCESS TO ABUTTING PROPERTY TO COLLECTORS.

DESIRED MINIMUM STANDARDS

STREET FUNCTIONAL CLASSIFICATION	RIGHT-OF-WAY WIDTH (L.F.)	BACK-TO-BACK CURB (L.F.)
5 lane ARTERIAL w/ separate 10' bike path	100	64
4 lane ARTERIAL w/ separate 10' bike path	80	52
3 lane COLLECTOR w/ separate 10' bike path	70	39
3 lane COLLECTOR	60	39
LOCAL w/ Bike or Parking Lane on Pavement	60	39
2 lane LOCAL w/ separate 10' bike path	60	29
2 lane LOCAL	50	29

CITY OF TIPP CITY CHOICE ONE ENGINEERING	STREET CLASSIFICATIONS AND RECOMMENDED STANDARD STREET DIMENSIONS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300–1



MINIMUM STANDARDS

ITEM	DESCRIPTION	ARTERIAL 5 Ln. w/ Bike	ARTERIAL 4 Ln. w/ Bike	COLLECTOR 3 Ln. w/ Bike	COLLECTOR 3 Ln.	LOCAL w/ Parking	LOCAL 2 Ln. w/ Parking	LOCAL 2 Ln.
I	RIGHT-OF-WAY	100'	80'	70'	60'	60'	60'	50'
II	B\B CURB	64'	52'	39'	39'	39'	29'	29'
III	SIDEWALK WIDTH	6'	5'	4'	4'	4'	4'	4'
IV	CURB LAWN	5.5'	5.5'	5.5'	5.5'	5.5'	5.5'	5.5'
V	ITEM 442-1	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
VI	ITEM 442-2	2"	2"	1-1/2"	1-1/2"	2-1/2"	2-1/2"	2-1/2"
VII	ITEM 302	6"	6"	4"	4"	–	–	–
VIII	ITEM 304	2-4" LIFTS	2-4" LIFTS	2-4" LIFTS	2-4" LIFTS	2-5" LIFTS	2-5" LIFTS	2-5" LIFTS

NOTES

A. ALL WORK TO CONFORM TO ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS LATEST REVISION UNLESS OTHERWISE SPECIFIED.

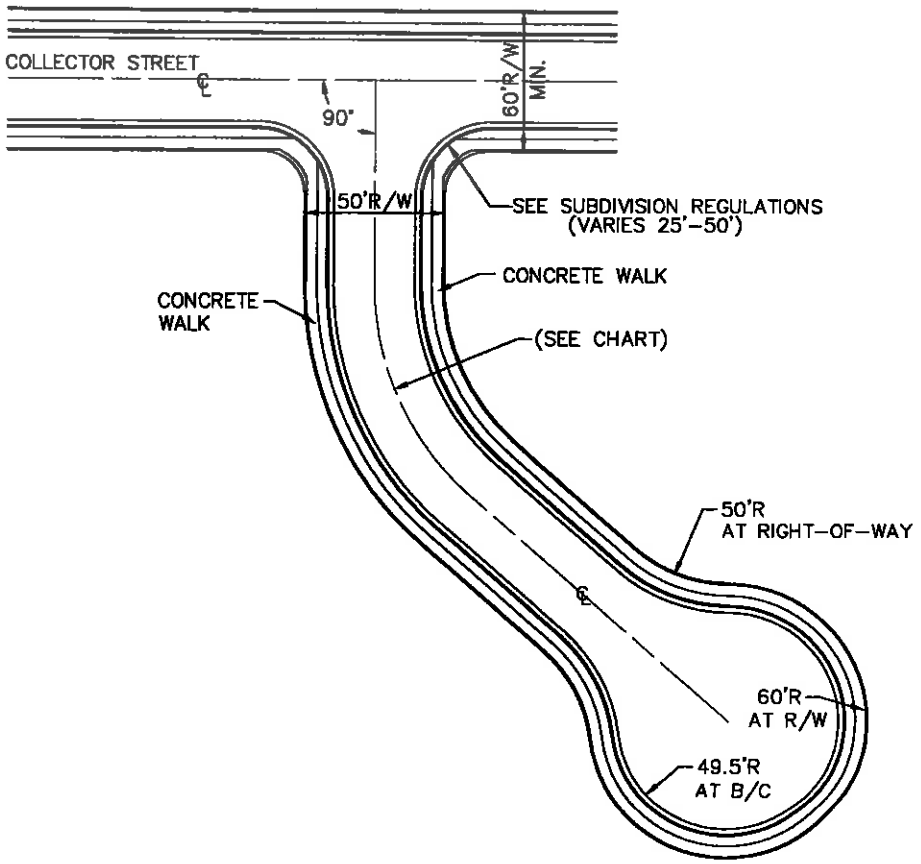
B. ITEM 407 TACK COAT, SHALL BE REQUIRED WHEN 10 DAYS HAVE ELAPSED BETWEEN ASPHALT PAVEMENT LIFTS UNLESS OTHERWISE SPECIFIED BY THE CITY. APPLICATION RATE IS 0.10 GALLON PER SQUARE YARD.

C. ALL BUTT JOINTS SHALL BE SEALED WITH PG64-22 WITHIN 24 HOURS AFTER PLACEMENT OF ITEM 448.

D. NO CONCRETE PAVEMENT WILL BE ACCEPTED

CITY OF TIPP CITY CHOICE ONE ENGINEERING	# TYPICAL SECTIONS AND PAVEMENT COMPOSITION	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-2

TYPICAL STREET AND CUL-DE-SAC PLAN



MINIMUM STREET DESIGN STANDARDS

	LOCAL	COLLECTOR	ARTERIAL
MINIMUM CENTERLINE GRADES	.50%	.50%	.50%
MAXIMUM CENTERLINE GRADES	8%	8%	7%
MINIMUM LENGTH OF VERTICAL CURVE (SEE NOTE A).	50FT.	50FT.	100FT.
MINIMUM CENTERLINE RADIUS	200FT.	300FT.	400FT.
MINIMUM LENGTH TANGENT BETWEEN CURVES	PER SUBDIVISION REGULATIONS		
MINIMUM BACK–OF–CURB RADIUS	PER SUBDIVISION REGULATIONS		
MINIMUM HORIZONTAL VISIBILITY	200FT.	300FT.	500FT.
MINIMUM STOPPING SIGHT DISTANCE (MEASURED FROM 3.5' EYE–LEVEL TO 6" OBJECT HEIGHT)	PER SUBDIVISION REGULATIONS		
CROSSROAD GRADE–STOP CONDITION–WITHIN 100' OF AN INTERSECTION	3%	3%	3%

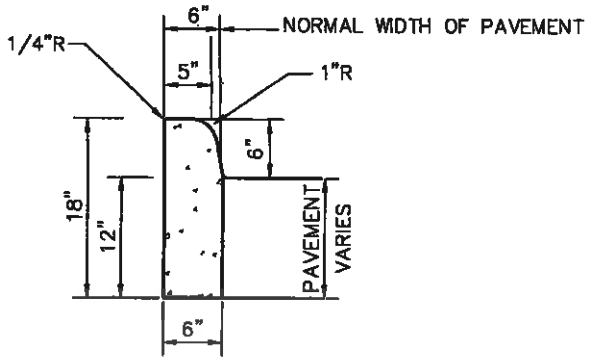
NOTES

A. MINIMUM LENGTH OF VERTICAL CURVE CAN BE REDUCED OR ELIMINATED TO ALLOW FOR PROPER DRAINAGE, WITH APPROVAL.

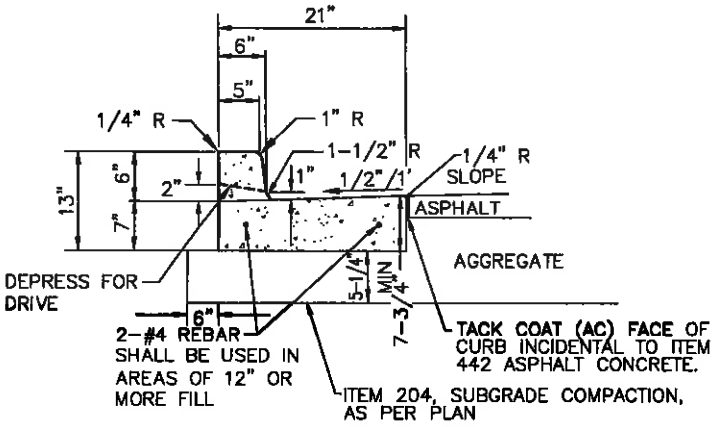
B. STREET GRADES SHALL NOT EXCEED 3% WITHIN A DISTANCE OF 100 FEET FROM AN INTERSECTION WITH ANOTHER STREET CENTERLINE.

C. THE MAXIMUM LENGTH FOR A CUL–DE–SAC STREET SHALL BE 600 FEET FROM CENTER OF THE STREET TO THE CENTER OF THE CUL–DE–SAC UNLESS AUTHORIZED BY THE CITY.

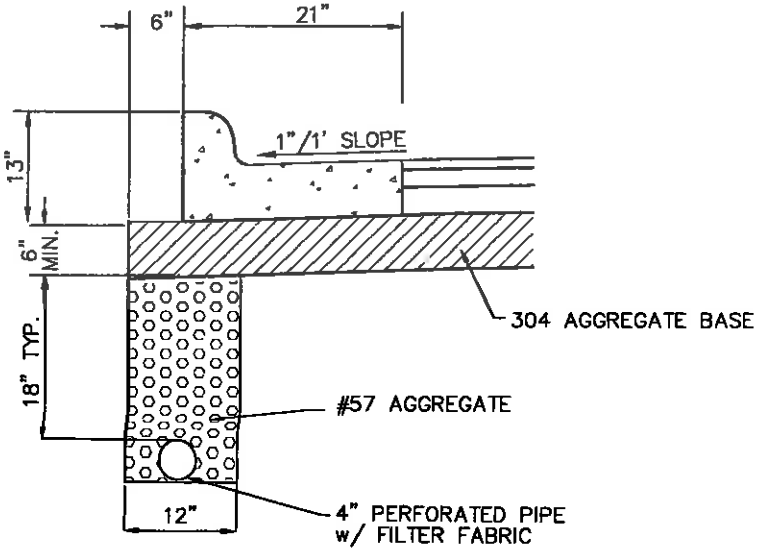
CITY OF TIPP CITY CHANCE ONE ENGINEERING	STREET DESIGN STANDARDS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300–3



TYPE 6
BARRIER CURB



TYPE 1 COMBINATION
CURB AND GUTTER

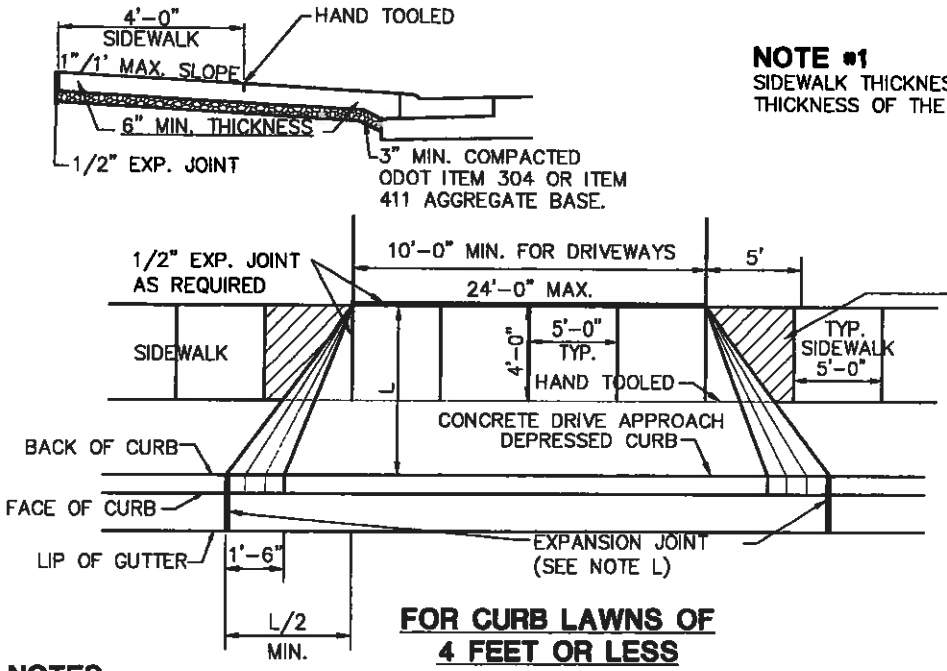


4" SHALLOW PIPE UNDERDRAIN DETAIL
(AS REQUIRED BY CITY)

GENERAL NOTES

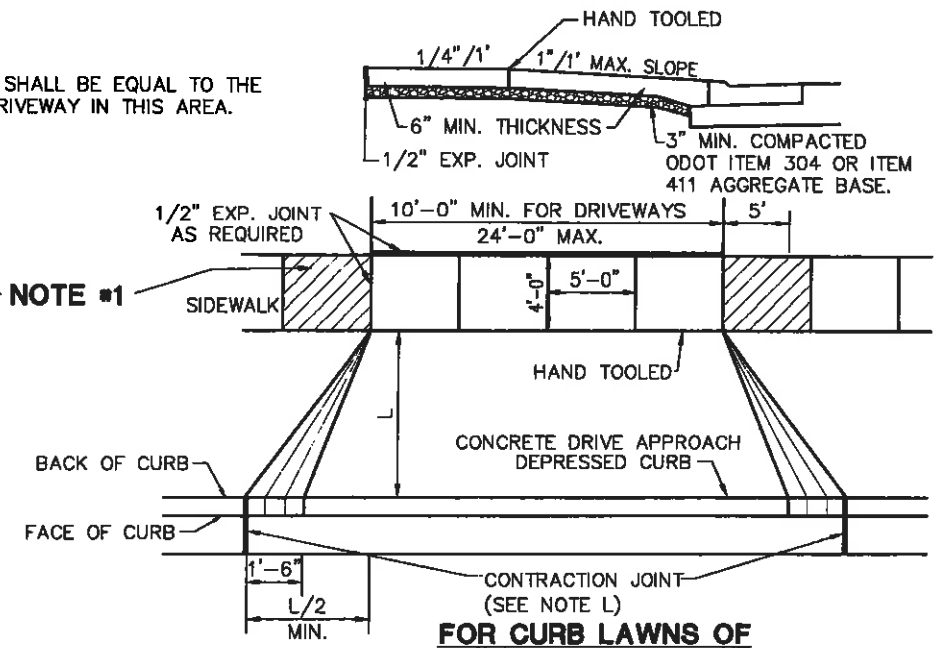
1. CONCRETE AND WORK SHALL MEET THE REQUIREMENTS SET FORTH IN ODOT QC MISC. (CEMENT ONLY – NO POZZOLAN MATERIAL) AND REINFORCE WITH FIBERS.
2. CURBING SHALL HAVE CONTRACTION JOINTS EVERY 10'.
3. MINIMUM OF 5–1/4" OF ODOT 304 SHALL BE PLACED UNDER CURBING.
4. CURBING SHALL BE BACKFILLED IMMEDIATELY AFTER FORMS ARE REMOVED.
5. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.
6. USE CLEAR CURING COMPOUND IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER METHODS OR TYPE OF CURING COMPOUND MUST BE PRE–APPROVED.
7. 1/2" PREMOLDED EXPANSION JOINTS SHALL BE INSTALLED AT EACH SIDE OF DRIVE APPROACH SECTIONS AND AT P.C. POINTS, AT INTERSECTIONS, AND AT 100' MAX. INTERVALS.
8. ALL UNDERGROUND UTILITY LATERALS SHALL BE MARKED IN THE TOP OF ALL CURB WHILE IT IS BEING POURED AS FOLLOWS:
   "S" - SANITARY LATERAL
   "W" - WATER LATERAL
9. TYPE 6 CURBS ARE FOR USE AROUND MEDIAN SECTION.
10. MINIMUM FLOW LINE SLOPE OF PERFORATED PIPE IS 0.003 FT/FT TO OUTLET.
11. ALL CURB, DRIVEWAYS, WALKS, AND CURB RAMPS SHALL HAVE 3 LBS, OF 2.25" IN LENGTH FIBRILLATED MACROFIBERS PER CUBIC YARD.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	# CONCRETE CURB DETAILS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300–4



FOR CURB LAWNS OF 4 FEET OR LESS

NOTE #1
SIDEWALK THICKNESS SHALL BE EQUAL TO THE THICKNESS OF THE DRIVEWAY IN THIS AREA.



FOR CURB LAWNS OF MORE THAN 4 FEET

NOTES

A. DRIVE APPROACHES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 452, 499, 608, AND 609 CAST IN-PLACE CONCRETE.

B. DRIVE APPROACHES MAY BE PLACED MONOLITHICALLY WITH CURB, PROVIDED THAT A 1" DEEP CONTROL JOINT BE TOOLED AT THE B/C

C. MAXIMUM JOINT SPACING SHALL BE 10' LONGITUDINALLY, TRANSVERSELY AND AT TAPERS.

D. *EXPANSION MATERIAL SHALL BE 1/2" PREMOLDED, ODOT* APPROVED.

E. 6" OF COMPACTED ODOT ITEM 304 OR ITEM 411 AGGREGATE BASE SHALL BE PLACED UNDER DRIVE APPROACHES.

F. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.

G. WHERE CURB AND GUTTER HAS NOT BEEN DROPPED AT DRIVE APPROACHES, THE CONTRACTOR WILL CUT AND REMOVE CURB. (SEE DETAIL)

H. WHERE ASPHALTIC CONCRETE PAVEMENT IS DISTURBED, THE ASPHALT SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE CITY.

I. JOINTS SHALL BE CLEANED AND EDGED BY A 1/4" RADIUS EDGER. LONGITUDINAL JOINTS SHALL BE AS DIRECTED BY THE CITY. EXPANSION JOINTS SHALL BE OF SUCH DIMENSIONS AS SHOWN ON STANDARD DRAWINGS FOR CONSTRUCTION JOINTS.

J. ALL CURB, DRIVEWAYS, WALKS, AND CURB RAMPS *SHALL HAVE 3 LBS, OF 2.25" IN LENGTH* FIBRILLATED MACROFIBERS PER CUBIC YARD.

K. CONCRETE SHALL BE QC. MISC.(CEMENT ONLY-NO POZZOLAN MATERIAL) AND REINFORCED WITH FIBERS.

L. THIS STANDARD DRAWING IS FOR GUIDELINE PURPOSES. EACH INDIVIDUAL DRIVE WILL NEED TO BE DESIGNED AND SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL.

M. DRIVE APPROACHES SHALL BE 10' MINIMUM TO 24' MAXIMUM UNLESS OTHERWISE APPROVED BY THE CITY. (3 LANE RESIDENTIAL DRIVE IS PERMITTED ONLY IF IT SERVICES A 3 CAR GARAGE WITH DOORS FACING THE STREET WITH A SETBACK OF 40 FEET OR LESS.)

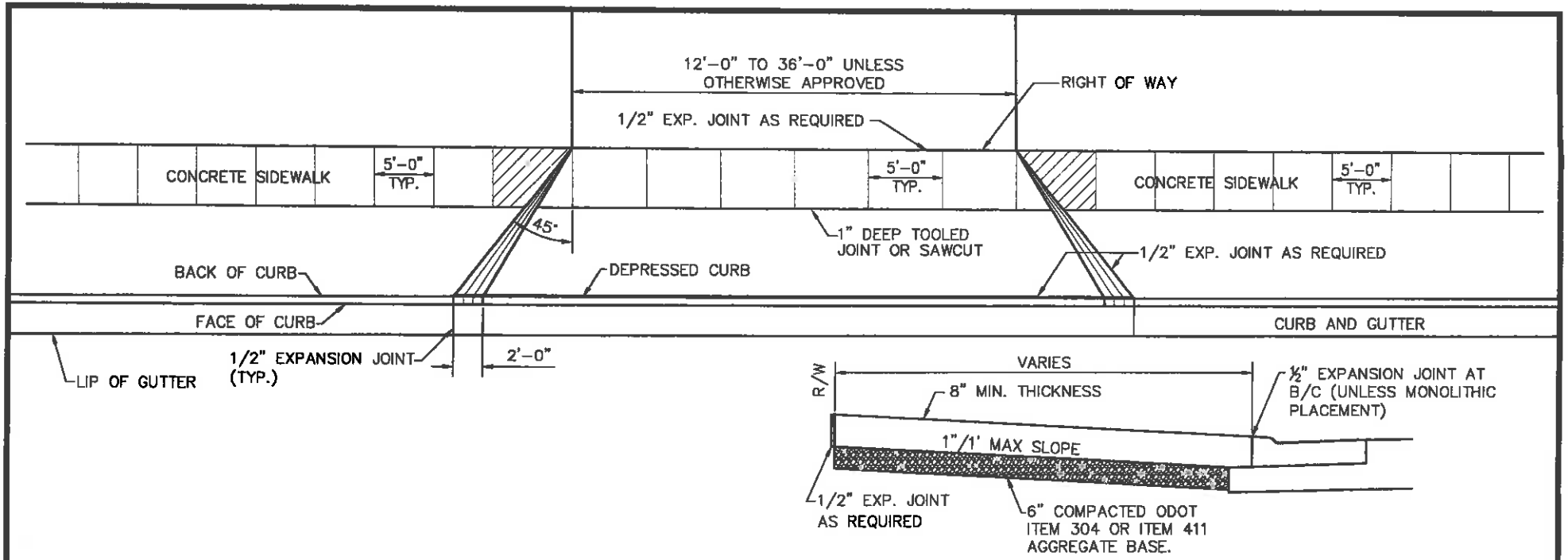
N. ALL NEW CONSTRUCTION OR MODIFICATIONS OF DRIVE APPROACHES REQUIRE A CONCRETE APPROACH, REGARDLESS OF WHETHER THERE IS A SIDEWALK OR NOT. THE NEW APPROACH IS TO GO *FROM EDGE OF EXISTING STREET TO RIGHT OF WAY* OR A MINIMUM OF 6'-0".

O. DRAINAGE ISSUES WILL HAVE TO BE ADDRESSED, WHEN A DRIVEWAY IS INSTALLED OR MODIFIED.

P. PRECAUTIONS SHALL BE TAKEN TO PROTECT EXISTING CONCRETE, BRICK, ETC. FROM TIRE MARKS AND DAMAGE DURING CONSTRUCTION.

Q. USE CLEAR CURING COMPOUND IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER METHODS OR TYPE OF CURING COMPOUND MUST BE PRE-APPROVED.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	# RESIDENTIAL DRIVE APPROACH	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-5



NOTES

A. DRIVE APPROACHES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 452 AND 499 CAST IN PLACE CONCRETE.

B. DRIVE APPROACHES MAY BE PLACED MONOLITHICLY WITH CURB. PROVIDING A 1" DEEP CONTROL JOINT TO BE TOOLED AT THE BACK OF CURB.

C. MAXIMUM JOINT SPACING SHALL BE 10' LONGITUDINALLY AND TRANSVERSELY WITH JOINTS AT TAPERS.

D. EXPANSION MATERIAL SHALL BE 1/2" PREMOLDED.

E. 6" OF COMPACTED ODOT ITEM 304 OR ITEM 411 AGGREGATE BASE SHALL BE PLACED UNDER DRIVE APPROACHES.

F. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES.

G. WHERE CURB AND GUTTER HAS NOT BEEN DROPPED AT DRIVE APPROACHES, THE CONTRACTOR WILL CUT AND REMOVE CURB (SEE DETAIL).

H. WHERE ASPHALTIC CONCRETE PAVEMENT IS DISTURBED, THE ASPHALT SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE CITY.

I. JOINTS SHALL BE CLEANED AND EDGED BY A 1/4" RADIUS EDGER. LONGITUDINAL JOINTS SHALL BE AS DIRECTED BY THE CITY. EXPANSION JOINTS SHALL BE OF SUCH DIMENSIONS AS SHOWN ON STANDARD DRAWINGS FOR CONSTRUCTION JOINTS.

J. USE CLEAR CURING COMPOUND IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER METHODS OR TYPE OF CURING COMPOUND MUST BE PRE-APPROVED.

K. THIS STANDARD DRAWING IS FOR GUIDELINE PURPOSES. EACH INDIVIDUAL DRIVE WILL NEED TO BE DESIGNED AND SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL.

L. CONCRETE SHALL BE QC. MISC. (CEMENT ONLY-NO POZZOLAN MATERIAL) AND REINFORCED WITH FIBERS.

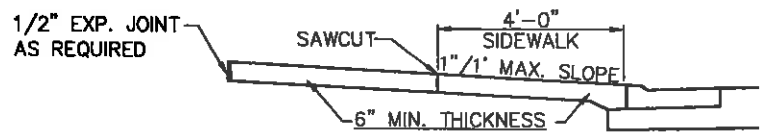
M. ALL CURB, DRIVEWAYS, WALKS, AND CURB RAMPS SHALL HAVE 3 LBS, OF 2.25" IN LENGTH FIBRILLATED MACROFIBERS PER CUBIC YARD.

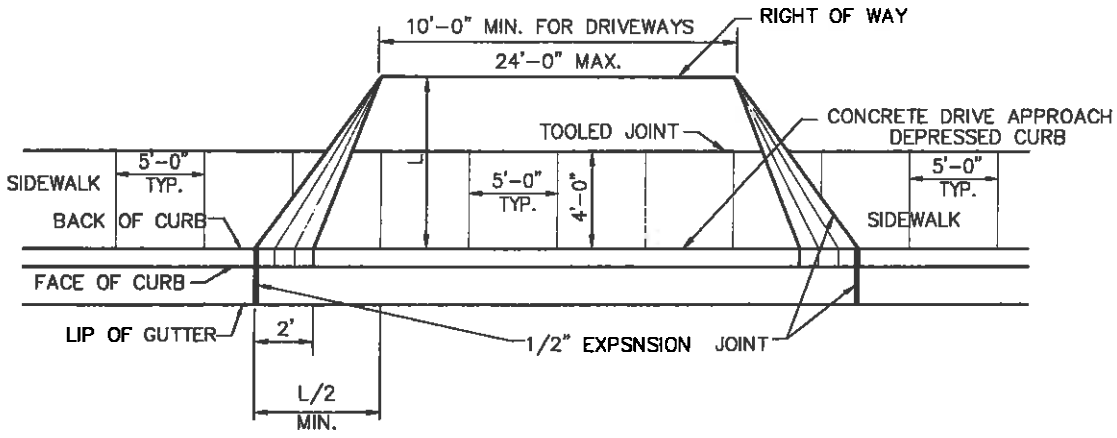
N. ALL NEW CONSTRUCTION OR MODIFICATIONS OF DRIVE APPROACHES REQUIRE A CONCRETE APPROACH, REGARDLESS OF WHETHER THERE IS A SIDEWALK OR NOT. THE NEW APPROACH IS TO GO FROM EDGE OF EXISTING STREET TO RIGHT OF WAY OR A MINIMUM OF 10'-0".

O. DRAINAGE ISSUES WILL HAVE TO BE ADDRESSED, WHEN A DRIVEWAY IS INSTALLED OR MODIFIED.

P. PRECAUTIONS SHALL BE TAKEN TO PROTECT EXISTING CONCRETE, BRICK, ETC. FROM TIRE MARKS AND DAMAGE DURING CONSTRUCTION.

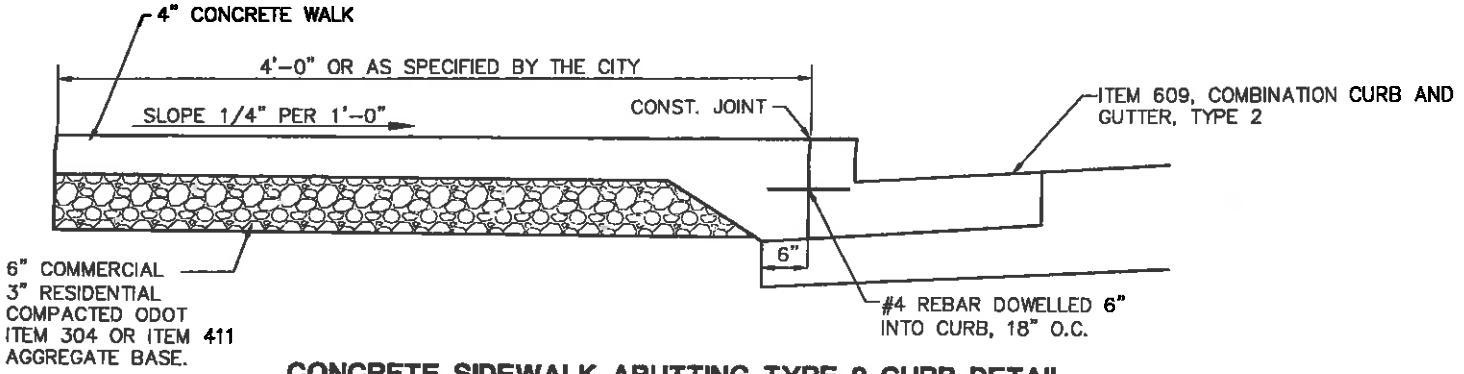
CITY OF TIPP CITY CHOICE ONE ENGINEERING	# COMMERCIAL AND INDUSTRIAL DRIVE APPROACH	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-6





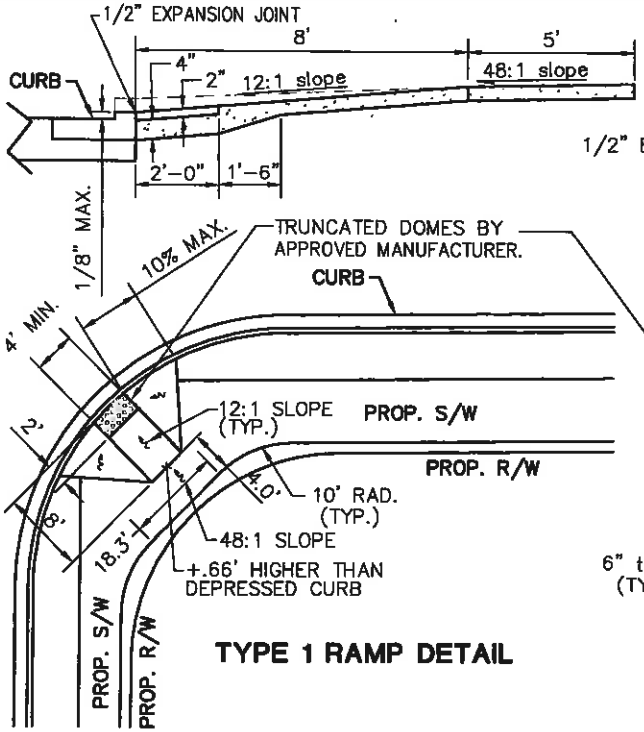
DRIVE APRON WITH NO CURB LAWN

FOR DRIVEWAY NOTES SEE PAGE 300-5

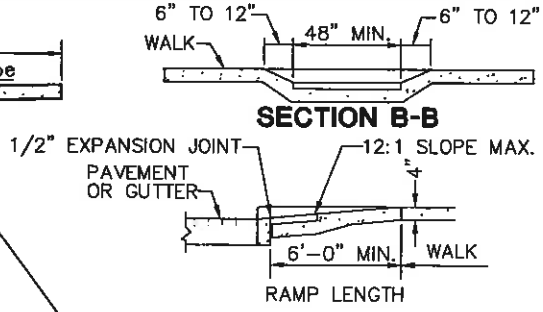


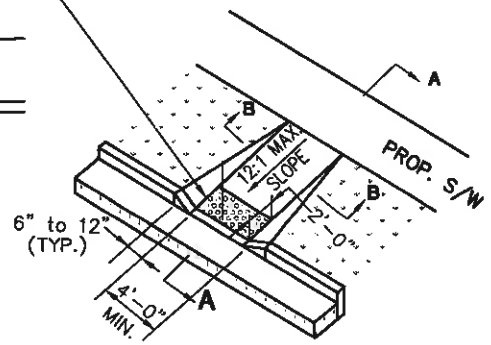
CONCRETE SIDEWALK ABUTTING TYPE 2 CURB DETAIL

CITY OF TIPP CITY CHANCE ONE ENGINEERING	# DRIVE APPROACH AND CONCRETE SIDEWALK DETAIL WITH NO CURB LAWN	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-7

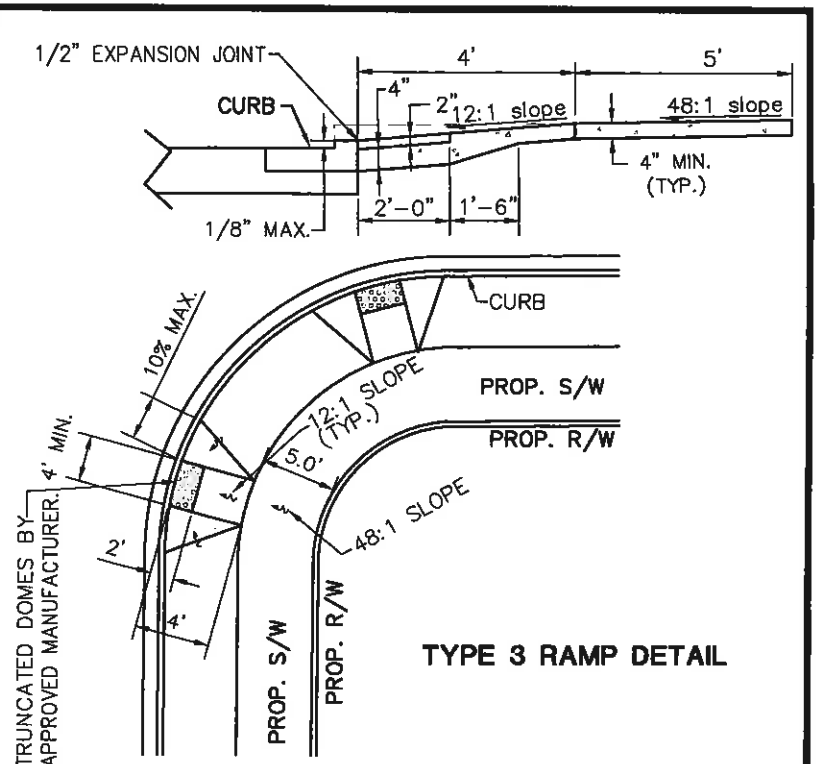


TYPE 1 RAMP DETAIL





TYPE A2 RAMP DETAIL



TYPE 3 RAMP DETAIL

NOTES

A. CITY TO SPECIFY TYPE 1, A2, OR 3 CURB RAMP.

B. ANY COMBINATION OF SIDE SLOPES ON OPPOSITE SIDES OF A RAMP MAY BE USED TO BEST FIT THE SITE CONDITIONS.

C. THE MINIMUM RAMP LENGTH IS 6' FROM BACK OF A 6" CURB AND MAY BE INCREASED WHERE FEASIBLE TO OBTAIN A FLATTER RAMP SLOPE OR TO BETTER BLEND WITH THE WALK CONFIGURATION.

D. WALK THICKNESS IN THE RAMP SLOPES SHALL BE 4" MINIMUM OR THICKER AS NECESSARY TO MATCH ADJACENT WALK THICKNESS.

E. CURB RAMPS SHALL MEET AND BE FINISHED TO AMERICANS WITH DISABILITIES ACT (A.D.A.) STANDARDS.

F. TEXTURE OF CONCRETE SURFACE SHALL BE OBTAINED BY COURSE BROOMING TRAVERSE TO THE RAMP SLOPES AND SHALL BE ROUGHER THAN ADJACENT WALK.

G. CURB RAMPS SHALL MEET THE REQUIREMENTS OF ODOT ITEM 608 UNLESS OTHERWISE SPECIFIED WITHIN. REFER TO ODOT STANDARD DRAWINGS FOR ADDITIONAL CURB RAMP CONFIGURATIONS.

H. CONCRETE SHALL BE QC. MISC. (CEMENT ONLY–NO POZZOLAN MATERIAL) AND REINFORCED WITH FIBERS.

I. ALL CURB, DRIVEWAYS, WALKS, AND CURB RAMPS SHALL HAVE 3 LBS, OF 2.25" IN LENGTH FIBRILLATED MACROFIBERS PER CUBIC YARD.

J. FOR RECONSTRUCTION JOBS, THE CURB RAMPS WILL HAVE TO BE ADDRESSED BASED ON THE EXISTING CONDITIONS.

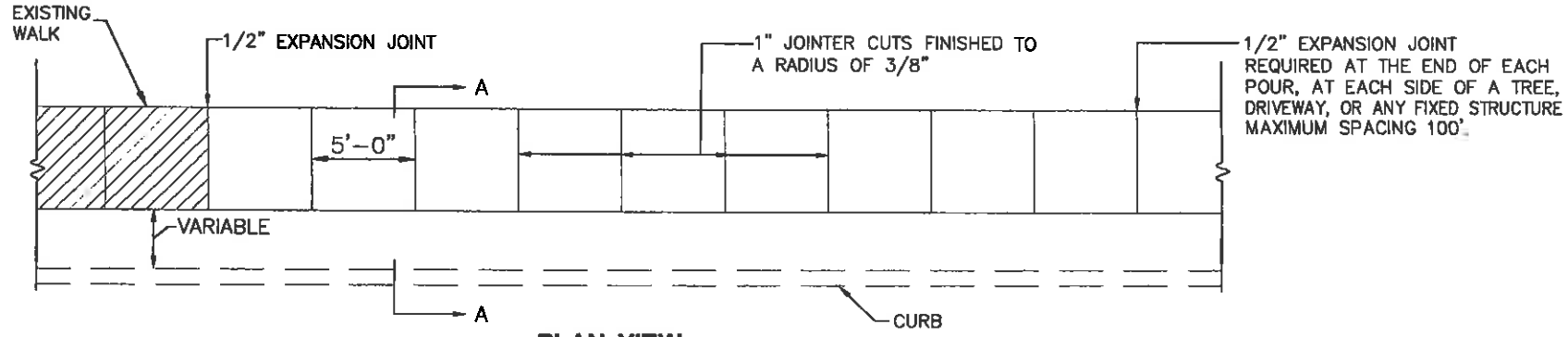
K. TRUNCATED DOME SPECIFICATIONS:
INSTALL DETECTABLE WARNINGS (TRUNCATED DOMES) FOR A DISTANCE OF 24" FROM THE BACK OF CURB FOR THE ENTIRE WIDTH OF THE RAMP OPENING WHERE IT IS FLUSH WITH THE PAVEMENT. THE TRUNCATED DOMES SHALL BE POWDER COATED CAST IRON OR CITY APPROVED, THE COLOR OF THE PANEL SHALL BE RED.

L. THE CURB RAMP SHALL BE POURED ON COMPACTED GRANULAR BEDDING. CITY INSPECTION OF FORM WORK IS REQUIRED PRIOR TO PLACING CONCRETE.

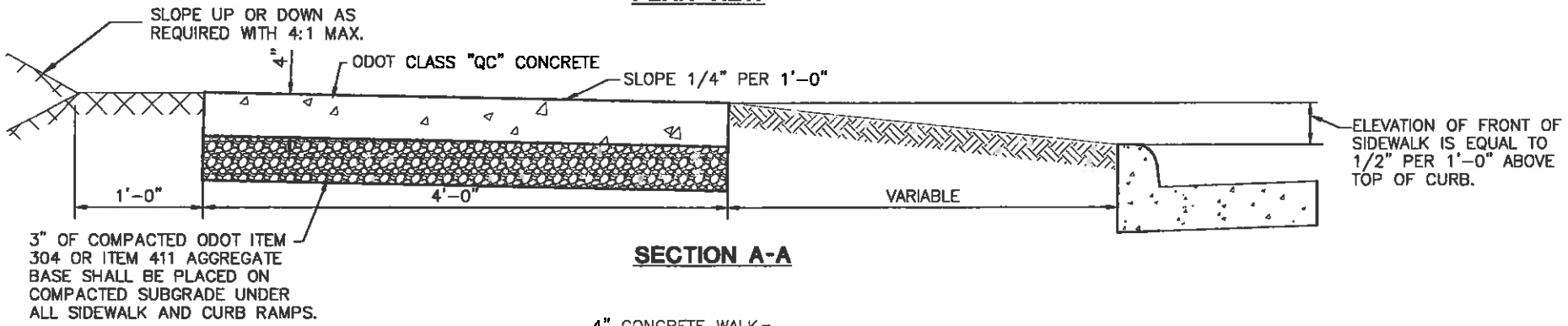
M. PROVIDE BROOM FINISH AND EDGING TO ALL EXPOSED SURFACES. TEXTURE SHALL BE A MEDIUM BROOM WITH TOOL FINISH, CITY TO REVIEW AND APPROVE FIRST POUR.

N. USE CLEAR CURING COMPOUND IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER CURING COMPOUND MUST BE PRE–APPROVED.

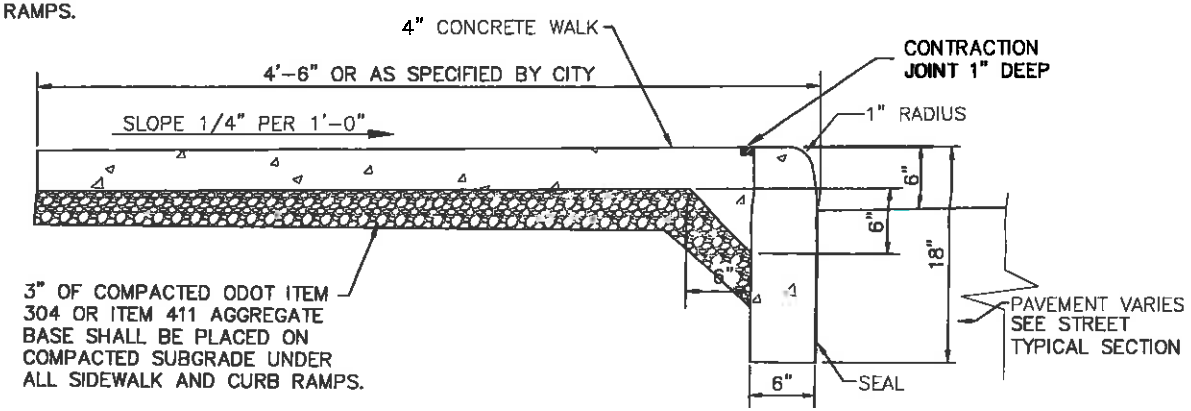
CITY OF TIPP CITY CHOICE ONE ENGINEERING	# CURB RAMPS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300–8



PLAN VIEW



SECTION A-A



COMBINED CURB AND SIDEWALK DETAIL

CITY OF TIPP CITY	CONCRETE SIDEWALK DETAIL	REVISIONS:	DATE APPROVED: MAR. 2015
CHOICE ONE ENGINEERING			PAGE No. 300-9

NOTES

A. WALK TO BE POURED ON COMPACTED GRANULAR BEDDING.

B. PROVIDE BROOM FINISH TO ALL EXPOSED SURFACES.

C. CONCRETE SHALL CONFORM TO ODOT ITEM 499 CONCRETE. CONCRETE WORK SHALL CONFORM TO ODOT ITEM 608, UNLESS OTHERWISE SPECIFIED WITHIN.

D. PROVIDE EDGING AROUND ALL EXPOSED SURFACES.

E. USE CLEAR CURING COMPOUND IMMEDIATELY AFTER FINISHING SURFACES. ANY OTHER CURING COMPOUND MUST BE PRE-APPROVED.

F. WHEN RENOVATING EXISTING STREETS, THE SIDEWALKS SHALL BE REPLACED TO CONFORM WITH CITY CONSTRUCTION STANDARDS AND DRAWINGS.

G. CONCRETE SHALL BE QC. MISC. (CEMENT ONLY-NO POZZOLAN MATERIAL) AND REINFORCED WITH CONCRETE FIBERS.

H. ANY DISTURBED PROPERTY PINS SHALL BE REESTABLISHED AFTER FINISHING OF SIDEWALK.

I. ALL CURB, DRIVEWAYS, WALKS, AND CURB RAMPS SHALL HAVE 3 LBS, OF 2.25" IN LENGTH FIBRILLATED MACROFIBERS PER CUBIC YARD.

SIDEWALK JOINTS

1. GENERAL: CONSTRUCT ISOLATION, CONSTRUCTION, AND CONTRACTION JOINTS, AND TOOL EDGINGS TRUE TO LINE WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO CENTERLINE, UNLESS OTHERWISE INDICATED.

   A. WHEN JOINING EXISTING PAVEMENT, PLACE TRANSVERSE JOINTS TO ALIGN WITH PREVIOUSLY PLACED JOINTS, UNLESS OTHERWISE INDICATED.

2. CONSTRUCTION JOINTS: SET CONSTRUCTION JOINTS AT SIDE AND END TERMINATION OF PAVEMENT AND AT LOCATIONS WHERE PAVEMENT OPERATIONS ARE STOPPED FOR MORE THAN ONE-HALF HOUR, UNLESS PAVEMENT TERMINATES AT ISOLATION JOINTS.

3. EXPANSION JOINTS: FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING MANHOLES, STRUCTURES, WALKS, OTHER FIXED OBJECTS, AND WHERE INDICATED. EXPANSION JOINTS SHALL NOT BE PLACED AT THE BUILDING FACE UNLESS DIRECTED BY THE CITY.

   A. LOCATION OF EXPANSION JOINTS AT INTERVALS OF 100', UNLESS OTHERWISE INDICATED.

   B. THE EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK PER ODOT 705.33.

4. CONTRACTION JOINTS: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED IN THE PLANS. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS, WHERE INDICATED, AS FOLLOWS:

   A. GROOVED JOINTS: FORM CONTRACTION JOINTS AFTER INITIAL FLOATING BY GROOVING AND FINISHING EACH EDGE OF JOINT WITH GROOVER TOOL TO THE FOLLOWING RADIUS. REPEAT GROOVING OF CONTRACTION JOINTS AFTER APPLYING SURFACE FINISHES. ELIMINATE GROOVER OVERFLOW SLURRY MARKS ON CONCRETE SURFACES. QUALITY WORK SHALL BE PERFORMED OR THE NEW SIDEWALK WILL BE REMOVED AND REDONE AT THE CONTRACTOR'S EXPENSE. RADIUS TO BE 1/4 INCH (6 MM).

   B. SAWED JOINTS WILL NOT BE PERMITTED, WITHOUT PRIOR APPROVAL OF THE CITY.

5. EDGING: TOOL EDGES OF JOINTS IN CONCRETE AFTER INITIAL FLOATING WITH AN EDGING TOOL TO A RADIUS OF 1/4 INCH (6 MM). REPEAT TOOLING OF EDGES AFTER APPLYING SURFACE FINISHES. ELIMINATE TOOL MARKS (OVERFLOW SLURRY) ON CONCRETE SURFACES.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	CONCRETE SIDEWALK NOTES	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-10

EXAMPLE: 3/4 INCH TRIP HAZARD

ADJOINING BLOCKS OR PORTIONS THEREOF WHOSE EDGES DIFFER VERTICALLY BY MORE THAN 3/4 INCH.

EXAMPLE: DETERIORATION

ANY SIDEWALK THAT IS DETERIORATED OR SHOWS SURFACE SPALLING, LEAVING IT VERY ROUGH, UNSAFE, OR WITH AGGREGATE PROTRUDING.

EXAMPLE: ABRUPT SLOPE

BLOCKS, OR PORTION OF BLOCKS, THAT CAUSE AN ABRUPT CHANGE OF 1 INCH PER FOOT (OR MORE) IN ANY DIRECTION OF THE SIDEWALK.

EXAMPLE: PLATES, COVERS, ETC.

METAL OR OTHER PLATES, COVERS, OR GRATINGS THAT ARE NOT FLUSH (3/4 INCH OR MORE VERTICAL DIFFERENCE) WITH THE ADJOINING SIDEWALK SURFACE, ARE STRUCTURALLY UNSAFE, OR CAUSE A NUISANCE DUE TO SLIPPERY SURFACES ETC.

EXAMPLE: CRACKS

ANY SIDEWALK BLOCK (BASED ON 20 SQ. FT.) HAVING A CRACK OR CRACKS IN IT OF AT LEAST 3/4 INCH WIDE WITH A MINIMUM OF 4 LINEAL FEET IN ONE BLOCK. (VARIOUS SIZE BLOCKS WILL BE EVALUATED PROPORTIONALLY.)

PERMITS, INSPECTION, AND WORK RULES

A. NO PERSON SHALL TEAR UP OR DIG INTO ANY PUBLIC RIGHT-OF-WAY OR STREET FOR THE PURPOSE OF CONSTRUCTING OR REPAIRING THE SIDEWALK, CURBING, OR GUTTERS THEREON OR FOR ANY OTHER PURPOSE, WITHOUT HAVING FIRST OBTAINED A PERMIT FROM THE ENGINEERING DEPARTMENT TO DO SO.

B. THE CONTRACTOR MUST CALL THE CITY FOR AN INSPECTION AT LEAST 24 HOURS BEFORE HE PLANS TO POUR THE CONCRETE. THE CONTRACTOR OR HIS FOREMAN MUST BE ON THE JOB WHEN THE INSPECTOR ARRIVES. IF, BECAUSE OF WEATHER CONDITIONS OR FOR SOME OTHER REASON, IT WILL NOT BE POSSIBLE TO HAVE A PERSON ON THE JOB, THE CONTRACTOR IS REQUIRED TO CALL AND CANCEL THE INSPECTION.

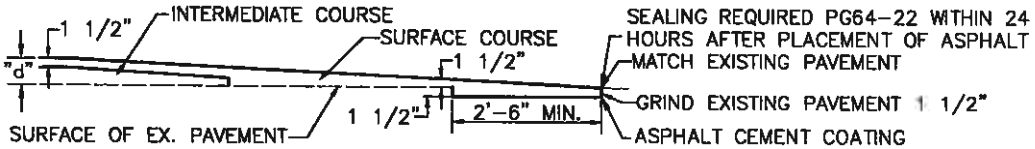
C. THE CONTRACTOR IS CAUTIONED AGAINST ORDERING CONCRETE BEFORE THE INSPECTION IS MADE DUE TO POSSIBLE CORRECTION OF FORMS OR GRADE.

D. THE CONTRACTOR SHALL PROVIDE PROTECTION AND TRAFFIC CONTROL BARRICADES, LIGHTS, SIGNS, AND OTHER DEVICES AS HEREIN SPECIFIED TO PROVIDE WARNING AND PROTECTION FOR VEHICULAR TRAFFIC, PEDESTRIANS, AND THE WORK DURING THE REMOVAL, CONSTRUCTION AND CURING OF SIDEWALK, CURB AND GUTTER, AND DRIVEWAY APRONS.

E. THE CONTRACTOR WILL BE RESPONSIBLE FOR AN IMMEDIATE REMOVAL AND CLEANUP OF ALL EXCAVATED MATERIAL. NO EXCAVATED MATERIAL SHALL BE STORED ON THE PAVEMENT.

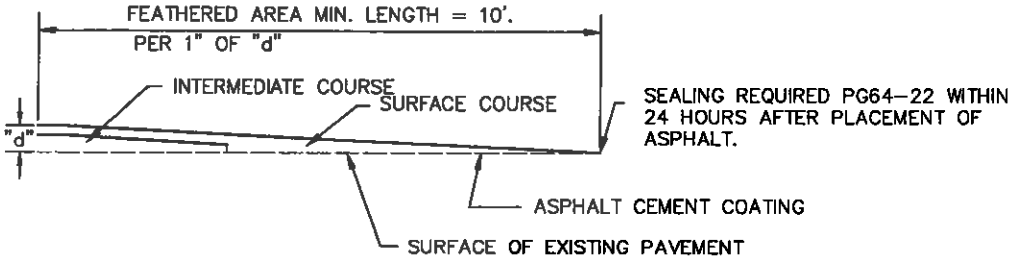
F. ALL CONTRACTORS INSTALLING NEW CURB ARE CAUTIONED THAT IT IS THEIR RESPONSIBILITY TO REPAIR THE STREET PER CITY SPECIFICATIONS BEFORE REMOVING YOUR BARRICADES.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	GUIDELINES FOR REPLACEMENT OF SIDEWALKS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-11

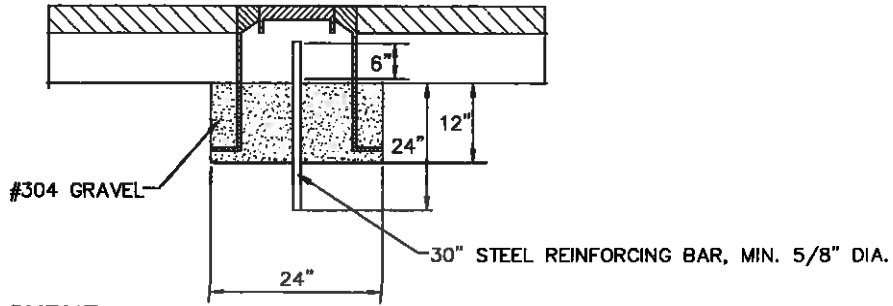


NOTE: MINIMUM LENGTH = 10' PER INCH OF "'d".

BUTT JOINT DETAIL



FEATHERING DETAIL



SURVEY MONUMENT DETAIL, IF REQUIRED

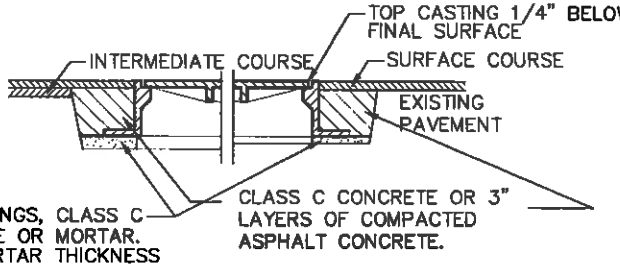
NOTES

A. IF REQUIRED, MONUMENT BOXES SHALL BE SET PRIOR TO THE LAYING OF ODOT ITEM 448 ASPHALT UNLESS OTHERWISE PREAPPROVED.

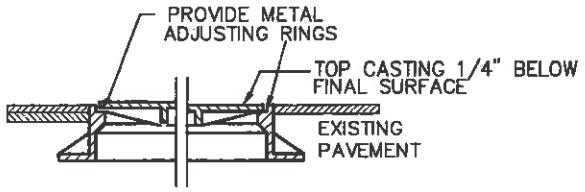
B. MONUMENT ASSEMBLIES SHALL BE NEENAH R-1978-A2 OR EAST JORDAN 8375.

C. MONUMENT BOXES SHALL MEET THE REQUIREMENTS OF ODOT ITEM 604 UNLESS OTHERWISE SPECIFIED WITHIN.

MANHOLES ADJUSTED TO GRADE FOR OVERLAYS



USING CONCRETE OR MORTAR



USING METAL ADJUSTING RINGS

NOTES

METAL ADJUSTING RINGS SHALL:

A. ATTACH SECURELY TO THE EXISTING FRAME BY TACK WELD OR MECHANICAL DEVICES.

B. CONSIST EITHER OF CAST METAL HAVING AN INTEGRAL RIM AND SEAT, OR BE FABRICATED METAL WITH A STURDY CONNECTION BETWEEN THE SEAT AND RIM.

C. PROVIDE AN EVEN SEAT FOR THE MANHOLE COVER

D. SHALL BE A TYPE DESIGN ACCEPTABLE TO THE CITY, ADJUSTABLE DIAMETER RINGS WILL NOT BE ACCEPTED.

E. ANY INSTALLATION UNACCEPTABLE TO THE CITY SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.

CITY OF TIPP CITY CHANCE ONE ENGINEERING	ASPHALT OVERLAY AND MONUMENT	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-12

GENERAL

A. ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH ODOT SPECIFICATIONS, LATEST REVISION.

B. CONTRACTOR MUST APPLY FOR NECESSARY PERMITS, FEES, ETC. WITH THE CITY BEFORE CONSTRUCTION OR DEMOLITION BEGINS.

PAVEMENT REPLACEMENT

A. IMMEDIATELY AFTER PLACEMENT OF BACKFILL IN EXISTING STREETS, A TEMPORARY PAVEMENT SHALL BE INSTALLED AND THE STREET OPENED. TEMPORARY PAVEMENT SHALL CONSIST OF 8" OF COMPACTED ODOT SPECIFICATION 304 BASE AND A SURFACE COURSE APPROVED BY THE CITY. THE SURFACE SHALL BE KEPT FLUSH WITH THE EXISTING STREET.

B. PERMANENT PAVEMENT REPLACEMENT SHALL BE EQUAL TO OR EXCEED THE EXISTING PAVEMENT. (MINIMUM PAVEMENT COMPOSITION, SEE PAGE 300-2).

C. ANY SETTLEMENT OF A TRENCH CAUSING A DEPRESSION SHALL BE REFILLED AS REQUIRED BY THE CITY AT THE CONTRACTOR'S EXPENSE. THIS PROVISION APPLIES FOR A ONE-YEAR PERIOD AFTER WORK IS ACCEPTED BY THE CITY.

D. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE CITY. COLD PATCH ALL TRENCHES A MINIMUM OF 3" WHEN FINAL ASPHALT WILL NOT BE REPLACED WITHIN 24 HOURS.

TRAFFIC CONTROL

A. THE CONTRACTOR SHALL MAINTAIN TRAFFIC CONTROL AT ALL TIMES WITH THE PROPER BARRICADES AS PER *THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL* DEVISES. THESE CONTROL DEVICES SHALL BE IN PLACE PRIOR TO ANY WORK COMMENCING.

B. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE APPROVED BY THE CITY.

CURB STAKING AND ROADWAY

A. LINE AND GRADE EVERY 25' ON A CONVENIENT OFFSET.

PAVEMENT (ASPHALT)

A. THE CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF THE NORMAL (MEDIUM TRAFFIC) ODOT 448 JOB MIX FORMULA FOR EACH PLANT THAT PROVIDES HOT MIXED ASPHALT TO THIS PROJECT. ALL MIXES SHALL FOLLOW ODOT JOB MIX FORMULA.

B. ALL WORK SHALL ADHERE TO ODOT'S LATEST REVISIONS AND TO THE CITY SPECIFICATIONS WHICHEVER IS MORE STRINGENT SHALL PREVAIL UNLESS OTHERWISE APPROVED.

C. PATCHED AREAS SHALL BE SEALED ON THE PERIMETER OF THE PATCH WITH ASPHALT CEMENT.

D. ALL UTILITY ADJUSTMENTS -- MANHOLE, WATER VALVE, ETC., -- SHALL BE RAISED TO FINISHED GRADE BEFORE THE FINAL ASPHALT COURSE IS LAID.

E. ASPHALT CEMENT SHALL BE PLACED ON THE FACE OF GUTTER PRIOR TO THE ASPHALT BEING PLACED.

F. TACK COAT SHALL BE APPLIED PRIOR TO THE PLACEMENT OF ANY ASPHALT AND MUST MEET ODOT MINIMUM SPECIFICATIONS.

G. PRIME COAT SHALL BE APPLIED ON NEW AGGREGATE WHEN TEMPERATURE IS 50°F OR HIGHER. UNLESS OTHERWISE APPROVED.

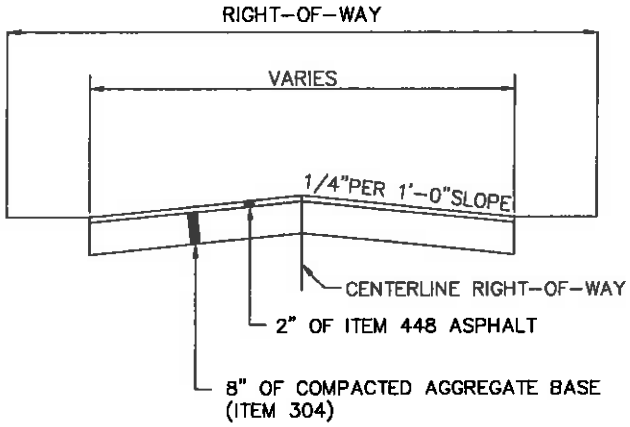
H. NO ASPHALT SHALL BE PLACED OVER EXCAVATED TRENCHES UNLESS TRENCHES HAVE BEEN COMPACTED AS PER CITY SPECIFICATIONS.

I. FINAL LIFT OF ASPHALT SHALL BE FINISHED TO 1/8"-1/4" ABOVE THE LIP OF GUTTER.

J. ASPHALT CEMENT SHALL BE USED ON ALL JOINTS AND FEATHERED SURFACES PRIOR TO PLACEMENT OF THE NEXT COURSE OF ASPHALT TO THE ABUTTING JOINT, UNLESS OTHERWISE APPROVED.

K. ALL EDGES TO BE TRIMMED BACK TO SOLID MATERIAL BY SAWING AND BE STRAIGHT AND NEAT AS PER THE CITY'S INSTRUCTIONS.

L. NO ASPHALT SHALL BE LAID UNLESS THE CITY IS GIVEN 24 HOUR PRIOR NOTICE AND THE AMBIENT AIR AND SURFACE TEMPERATURE MEETS THE MINIMUM ODOT REQUIREMENTS.



TYPICAL ALLEY CONSTRUCTION

A. MINIMUM STANDARD (UNLESS OTHERWISE APPROVED.)

B. FOR RENOVATION OF EXISTING ALLEYS ONLY. NO NEW ALLEY'S WILL BE APPROVED WITHIN THE CITY.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	MISCELLANEOUS ROADWAY NOTES AND ALLEY DETAIL	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-13

PERMIT REQUIRED

A RIGHT-OF-WAY EXCAVATION PERMIT FOR ANY DIGGING OR EXCAVATION WITHIN A PUBLIC RIGHT-OF-WAY FOR ANY STREET OR ALLEY IS REQUIRED 48 HOURS IN ADVANCE OF THE WORK. IN THE EVENT OF AN EMERGENCY, THE PERMIT APPROVAL REQUIREMENT SHALL BE WAIVED AND THE PROPER APPLICATION MUST BE SUBMITTED AS SOON AS POSSIBLE, BUT NO LATER THAN THE END OF THE FIRST WORKING WEEKDAY AFTER THE START OF WORK. AN EMERGENCY IS DEFINED AS A REPAIR REQUIRED TO PROVIDE SERVICE TO UTILITY CUSTOMERS OR TO MITIGATE A HAZARD, WHICH THREATENS PUBLIC HEALTH OR SAFETY.

PERMIT FORMS ARE AVAILABLE FROM THE CITY ENGINEERING DEPARTMENT. THE PERMIT FORM IS TO BE COMPLETED BY THE PERSON OR FIRM PLANNING THE WORK WITHIN THE RIGHT-OF-WAY. ALL FEES MUST BE PAID AND APPROVALS OBTAINED BEFORE ANY WORK IS STARTED. A 72 WORKING HOUR LEAD-TIME IS RECOMMENDED. A PERMIT FEE WILL BE REQUIRED OF EACH APPLICANT.

PERFORMANCE BOND

ANY INDIVIDUAL OR FIRM WHO MAKES APPLICATION FOR A RIGHT-OF-WAY EXCAVATION PERMIT MUST PROVIDE A CURRENT PERFORMANCE BOND TO THE CITY.

IN THE EVENT THAT AFTER NOTIFICATION FROM THE CITY ANY CONTRACTOR FAILS TO CORRECT PROBLEMS ASSOCIATED WITH POOR TRENCH REPAIR OR MAINTENANCE WITHIN 24 HOURS OF NOTIFICATION, THE CITY RESERVES EXCLUSIVE RIGHT TO CORRECT THE PROBLEMS AND COLLECT ASSOCIATED COSTS FROM THE PERFORMANCE BOND.

WORK REQUIREMENTS

THE APPLICANT SHALL HAVE SUFFICIENT BARRICADES, WARNING SIGNS, AND LIGHTS DURING THE ENTIRE PERIOD THAT WORK IS BEING PERFORMED AND SHALL ADHERE TO APPLICABLE SECTION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND RESPONSIBLE FOR MAINTENANCE AND CORRECTIONS AS NEEDED.

ALL DISTURBED AREAS MUST BE RETURNED TO A CONDITION THAT IS AS GOOD AS OR BETTER THAN THE CONDITION BEFORE THE WORK BEGAN. ALL REPAIRS MUST MEET CITY SPECIFICATIONS. THE CITY WILL INSPECT AND APPROVE ALL REPAIRS. THE BOND WILL BE RETURNED AFTER ALL REPAIRS ARE APPROVED, IF APPLICABLE.

FOR CLOSURE OF ARTERIALS OR BUSY COLLECTORS THE CITY RESERVES THE RIGHT TO DIRECT CONTRACTOR TO CLOSE THE STREET DURING OFF-PEAK TRAFFIC HOURS. CLOSURE MAY OCCUR AT NIGHT OR ON WEEKENDS. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL ASSOCIATED WITH ROAD CLOSURE.
EFFORTS SHALL BE MADE TO MINIMIZE ANY DISTURBANCE TO TREES OR ROOTS. EXCAVATION CAUSING DAMAGE TO TREES WILL RESULT IN THE REMOVAL AND REPLACEMENT BY THE CONTRACTOR.
WHEN WORK ON RIGHT-OF-WAY OPENINGS RESTRICTS ACCESS TO PRIVATE PROPERTIES, OR OTHERWISE HAS A DIRECT IMPACT ON PRIVATE PROPERTIES IN THE OPINION OF THE ENGINEER, THE APPLICANT MUST NOTIFY ALL AFFECTED PROPERTY OWNERS IN WRITING, AND PROVIDE A COPY OF THE NOTIFICATION AND A MAILING LIST, PRIOR TO THE ENGINEERING DEPARTMENT ISSUING A PERMIT.

ALL CONTRACTORS WHO PERFORM WORK REQUIRING ENTRY INTO ANY CONFINED SPACE OF A CITY-OWNED UTILITY SHALL COMPLY WITH THE CITY'S CONFINED SPACE ENTRY PROCEDURES AND IN ACCORDANCE WITH ALL OSHA REGULATIONS, IF APPLICABLE, AND APPROVAL FROM THE CITY.

MATERIAL SPECIFICATION

ALL WORK SHALL BE IN ACCORDANCE WITH THE ATTACHED DRAWINGS AND SPECIFICATIONS AND APPROVED BY THE ENGINEERING DEPARTMENT PRIOR TO COMMENCEMENT OF WORK.

STREET OPENINGS – THE MATERIAL USED TO FILL IN A DITCH OR HOLE SHALL BE ODOT ITEM 603 GRANULAR MATERIAL (# 304, # 411) OR ODOT ITEM 613 LOW STRENGTH MORTAR BACKFILL AS DIRECTED BY THE CITY. OTHER APPROVED GRANULAR MATERIALS MAY BE USED ONLY UPON THE CONTRACTOR RECEIVING PRIOR WRITTEN APPROVAL FROM THE ENGINEERING DEPARTMENT IF EXTENUATING CIRCUMSTANCES EXIST.

PLACE A MAXIMUM OF 12 INCHES OF ODOT TYPE 603 BACKFILL ABOVE THE TOP OF A PIPE.

FOR RIGHT-OF-WAY OPENINGS BEYOND THE LIMITS OF THE PAVEMENT THE BACKFILL SHALL BE IN ACCORDANCE WITH THE ATTACHED DRAWINGS AND SPECIFICATIONS.
ASPHALT SURFACE – ASPHALT SURFACE SHALL BE PLACED TO A DEPTH AS STATED IN ITEM 3, PAVEMENT RESTORATION, AS DETAILED IN THE ATTACHED SPECIFICATIONS.

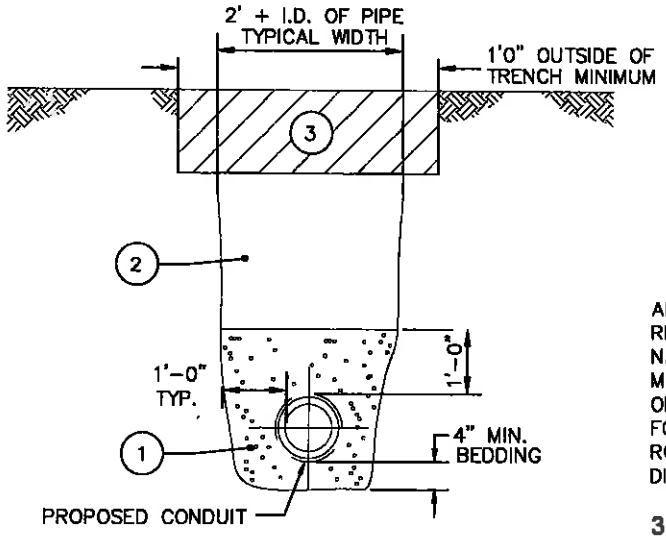
CONSTRUCTION

REPAIR AREAS SHALL BE RECTANGULAR IN SHAPE WITH DIMENSIONS AS REQUIRED TO ENVELOP SURFACE DETERIORATION. AT THE DIRECTION OF THE CITY THE LIMITS OF THE REPAIRED PAVEMENT MAY BE EXTENDED AS DEEMED NECESSARY. PAVEMENT SHALL BE REMOVED BY METHODS THAT WILL NOT DAMAGE ADJACENT PAVEMENT.

ALL JOINTS AND VERTICAL FACES SHALL BE SAW CUT, CLEANED AND COATED WITH ASPHALT CONCRETE (TACK COAT) PRIOR TO PLACEMENT OF BITUMINOUS CONCRETE.

ALL BUTT JOINTS SHALL BE SEALED WITH AN ASPHALT SEALER AFTER THE FINAL SURFACE MATERIAL IS PLACED. UNLESS OTHERWISE APPROVED BY THE CITY.

IF LOW STRENGTH MORTAL BACKFILL IS USED, THE LOW STRENGTH MORTAR BACKFILL SHALL BE BROUGHT UP UNIFORMLY TO THE FILL LINE SHOWN ON THE PLANS OR TO THE BOTTOM OF THE EXISTING GRAVEL BASE.



TRENCH DETAIL

1. BEDDING

GRANULAR BEDDING MATERIAL SHALL BE CRUSHED STONE OR GRAVEL COMPLYING WITH ODOT ITEM 603 TYPE 2 BEDDING (#57 OR # 411). BEDDING SHALL EXTEND 4" BELOW THE CONDUIT. BEDDING MATERIAL SHALL EXTEND 12" ABOVE THE TOP AND TO EACH SIDE OF THE CONDUIT. USE SHOVEL SLICING AND SPUD BARS IN CONJUNCTION WITH THE COMPACTION OPERATIONS TO COMPACT THE MATERIAL AND TO MANIPULATE THE MATERIAL UNDER THE HAUNCH OF THE PIPE.

2. BACKFILL

ALL TRENCH EDGES WITHIN THE STREET RIGHT-OF-WAY, SHALL BE BACKFILLED WITH EITHER ODOT ITEM 603 GRANULAR BACKFILL MATERIAL (#304, #411) OR ODOT ITEM 613 LOW STRENGTH MORTAR BACKFILL, AS DORECTED BY THE CITY.

- GRANULAR MATERIAL SHALL BE PLACED IN MAXIMUM 6" LIFTS. FOR GRANULAR EMBANKMENT AND STRUCTURAL BACKFILL, COMPACT EACH LIFT OF MATERIAL USING MECHANICAL DEVICES, HOE RAMS, JUMPING JACKS, HAND DEVICES, VIBRATING PLATES, OR OTHER SIMILAR EQUIPMENT. COMPACTION REQUIREMENTS SHALL BE 98% OF STANDARD PROCTOR CURVE.
- LOW STRENGTH MORTAR BACKFILL SHALL BE FURNISHED AND PLACED AS PER ODOT ITEM 613.

ALL TRENCH EDGES NOT WITHIN THE STREET RIGHT-OF-WAY, CAN BE BACKFILLED WITH CLEAN NATIVE MATERIAL COMPACTED IN 12 INCH LIFTS. MATERIAL SHALL BE COMPACTED TO 85% OF THE ORIGINAL COMPACTION. NO MATERIAL SHALL BE USED FOR BACKFILLING THAT CONTAINS GRANULAR MATERIAL, ROCK OR STONE GREATER THAN 4 INCHES IN DIAMETER.

3. PAVEMENT RESTORATION

IN PAVED AREAS WITHIN THE STREET RIGHT-OF-WAY THE PAVEMENT AND AGGREGATE BASE COMPOSITION SHALL BE PROVIDED EQUAL TO THE EXISTING PAVEMENT BUT IN NO CASE SHALL THE COMPOSITION BE LESS THAN THE FOLLOWING:

- 1-1/2" OF ODOT ITEM 448 SURFACE COURSE, TYPE 1
- 2-1/2" OF ODOT ITEM 448 INTERMEDIATE COURSE, TYPE 2
- 10" OF ODOT ITEM 304 AGGREGATE BASE

IN ALLEYWAYS AND DRIVEWAYS OUTSIDE OF THE STREET RIGHT-OF-WAY THE REPLACEMENT OF PAVEMENT AND/OR AGGREGATE SHALL BE EQUAL TO THE EXISTING ALLEYWAY OR DRIVEWAY COMPOSITION. IF THE PERMANENT ASPHALT CANNOT BE APPLIED WITHIN 48 HOURS OF THE INITIAL REPAIR. ODOT ITEM 405 OR COLD PATCH SHALL BE APPLIED TO THE TRENCH SURFACE. MINIMUM THICKNESS OF THE COLD PATCH MATERIAL SHALL BE 3 INCHES. SAID MATERIAL SHALL BE REMOVED PRIOR TO THE PLACEMENT OF ODOT ITEM 448, UNLESS OTHERWISE APPROVED.

CONCRETE RESTORATION

ALL CONCRETE DRIVEWAYS, DRIVE APPROACHES, AND SIDEWALKS WITHIN THE STREET RIGHT-OF-WAY, SHALL BE REPLACED WITH THE FOLLOWING:

SIDEWALKS -- MINIMUM THICKNESS OF 4" INCHES OF CONCRETE

- MATCH ORIGINAL WIDTH OF SIDEWALK
- MINIMUM WIDTH OF 4' REQUIRED
- DRIVEWAYS AND DRIVE APPROACHES:
- RESIDENTIAL: MINIMUM THICKNESS OF 6" OF CONCRETE
- BUSINESS & INDUSTRIAL: MINIMUM THICKNESS OF 8" OF CONCRETE

ALL CONCRETE DRIVEWAYS, DRIVE APPROACHES, AND SIDEWALKS OUTSIDE OF THE STREET RIGHT-OF-WAY SHALL BE REPLACED EQUAL TO THE EXISTING MATERIAL COMPOSITION.

COMPACTION GUIDELINES

THE CONTRACTOR MAY OPERATE SMALL COMPACTION EQUIPMENT WITH LESS THAN A TOTAL WEIGHT OF 1 TON OVER THE CONDUIT TO COMPACT THE BACKFILL. DO NOT USE HOE RAMS ON TOP OF THE CONDUIT UNTIL 2' OF BACKFILL IS COMPACTED ON TOP OF THE CONDUIT. THE CONTRACTOR MAY OPERATE COMPACTION EQUIPMENT WITH LESS THAN A TOTAL WEIGHT OF 8 TONS, BUT MORE THAN 1 TON, OVER THE CONDUIT AFTER PLACING AND COMPACTING 2' OF BACKFILL. DO NOT OPERATE EQUIPMENT WITH A TOTAL WEIGHT OF 8 TONS OR MORE UNTIL PLACING AND COMPACTING A COVER OF 4' OVER THE TOP OF THE CONDUIT. THE ABOVE RESTRICTIONS APPLY WHEN WORKING WITHIN ONE SPAN ON EACH SIDE OF THE CONDUIT, OR 6', WHICHEVER IS LESS.

ALL TRENCHES AND EXCAVATIONS SHALL BE BACKFILLED IMMEDIATELY AFTER THE PLACEMENT OF THE CONDUIT, UNLESS DIRECTED OTHER WISE BY THE CITY ENGINEER. UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE CONDUIT HAS BEEN PLACED.

AGGREGATE BASE, ASPHALT, CONCRETE AND SUBGRADE TESTING

AN INDEPENDENT CERTIFIED TESTING LABORATORY ACCEPTABLE TO THE CITY IS TO BE USED BY THE CONTRACTOR TO PERFORM THE REQUIRED TESTING, WHEN SO DIRECTED BY THE CITY. THE LAB SHALL PROVIDE THE CITY WITH ONE COPY OF ALL TEST RESULTS, INSPECTION LOGS, ETC.

1)ASPHALT – ONE TEST SAMPLE PER TYPE, PER PAVED LAYER OR PAVER PASS, PER DAY.

a) TEST – GRADATION AND EXTRACTION TO DETERMINE BITUMEN CONTENT BASED ON SUBMITTED JOB MIX FORMULA.

b) THE ENGINEER MAY REQUIRE ADDITIONAL ASPHALT SAMPLES BY TYPE, PER PAVED LAYER OR PAVER PASS.

2) CONCRETE

a) CURBING – ONCE DAILY DURING PLACEMENT
b) DRIVEWAY – ONCE DAILY DURING PLACEMENT
c) SIDEWALK – ONCE DAILY DURING PLACEMENT
d) TESTING REQUIRED

I) SLUMP TEST
II) AIR ENTRAINMENT
III) CONCRETE TEST CYLINDERS FOR

COMPRESSION STRENGTH TESTING AT 7 DAYS, 14 DAYS, AND 28 DAYS

e) THE ENGINEER MAY REQUIRE ADDITIONAL SAMPLES OF CONCRETE FOR CURB, DRIVEWAY OR SIDEWALK.

3) AGGREGATE BASE AND STREET SUB–GRADE

a) STREET SUB–GRADE

I) COMPACTION / DENSITY TESTING USING "ONE POINT" PROCTOR" AT 98%

II) A MAXIMUM OF 100' INTERVALS OUTSIDE OF ALL UTILITY TRENCHES IN UNDISTURBED SOILS, ALTERNATING SIDES OF THE STREET.

III) A MINIMUM OF 20' FROM START AND END OF WORK AREA.

IV) A MINIMUM OF 3' FROM THE PROPOSED CURB–LINE.

b) AGGREGATE BASE

I) COMPACTION / DENSITY TESTING USING STANDARD MATERIAL PROCTOR AT 98%

II) A MINIMUM OF 20' FROM START AND END OF WORK AREA.

III) A MAXIMUM OF 100' INTERVALS ALTERNATING SIDES OF THE STREET.

IV) A MINIMUM OF 3' FROM THE PROPOSED CURB–LINE.

c) THE ENGINEER MAY REQUIRE ADDITIONAL COMPACTION / DENSITY TESTING IN INTERSECTIONS, FILL AREAS OR IN AREAS OF UNDERCUTTING.

4) DRIVEWAYS AND SIDEWALK AREAS WHERE EMBANKMENT HAS BEEN PLACED OR UNDERCUTTING HAS OCCURRED AT THE DISCRETION OF THE ENGINEER.

a) COMPACTION / DENSITY TESTING USING STANDARD MATERIAL PROCTOR AT 98%

b) SIDEWALKS, AS DIRECTED

I) A MINIMUM OF 10' FROM START AND END OF WORK AREA.

II) A MAXIMUM OF 100' INTERVALS

c) DRIVEWAYS, AS DIRECTED

I) ONE PER AREA

PERMIT TO CLOSE STREET/ALLEY

1. NO STREET, ALLEY, PARKING LANE, OR SIDEWALK SHALL BE BLOCKED WITHOUT THE CITY FIRST APPROVING A PERMIT. APPLICATIONS FOR A PERMIT CAN BE OBTAINED AT THE CITY OF TIPP CITY ENGINEERING DEPARTMENT.

2. APPLICATIONS FOR A PERMIT TO CLOSE STREET/ALLEY SHALL BE SUBMITTED TO THE CITY ENGINEERING DEPARTMENT A MINIMUM OF 3 WORKING DAYS PRIOR TO THE REQUESTED CLOSURE.

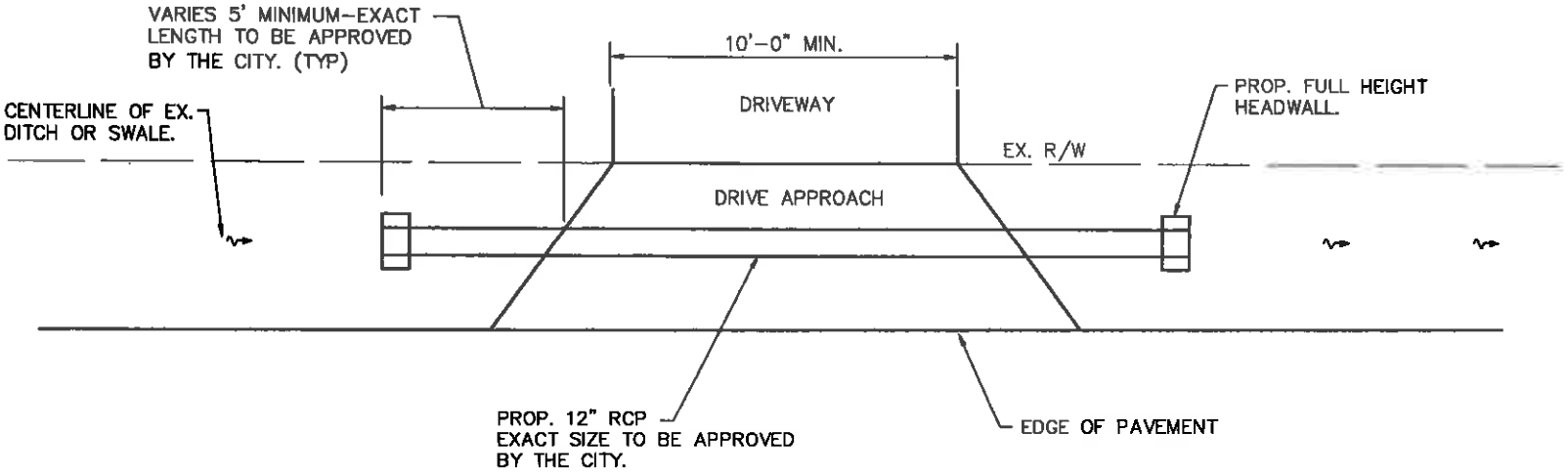
3. APPLICATION SHALL INCLUDE A DETAILED DRAWING OF THE WORK ZONE LAYOUT AND INCLUDE SIGNAGE, CONES, BARRICADES, BARRELS ETC. ALL WORK ZONES SHALL CONFORM TO THE CURRENT EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

4. IT SHALL BE THE APPLICANT/CONTRACTORS RESPONSIBILITY FOR PROVIDING AND MAINTAINING ALL NECESSARY SAFETY MATERIALS FOR THE SET UP OF THE WORK ZONE.

5. THE CITY ENGINEERING DEPARTMENT SHALL INSPECT THE WORK ZONE PERIODICALLY TO ASSURE THE MAINTENANCE OF THE DEVICES.

6. ALL EXCAVATION / REPAIR SHALL COMPLY WITH RIGHT-OF-WAY OPENING PERMIT REQUIREMENTS.

7. APPLICANT SHALL BE RESPONSIBLE FOR NOTIFYING IN WRITING ALL ADJACENT PROPERTY OWNERS TO BE AFFECTED BY THE CLOSURE. THE CITY SHALL RECEIVE A COPY OF THE WRITTEN NOTICE AND A LIST OF THE PROPERTY OWNERS AND THEIR ADDRESS THAT HAVE BEEN NOTIFIED.



DRIVE WITH CULVERT

NOTES

A. DRIVE APPROACHES SHALL BE CONSTRUCTED PER THE CITY STANDARDS AND APPROVAL.

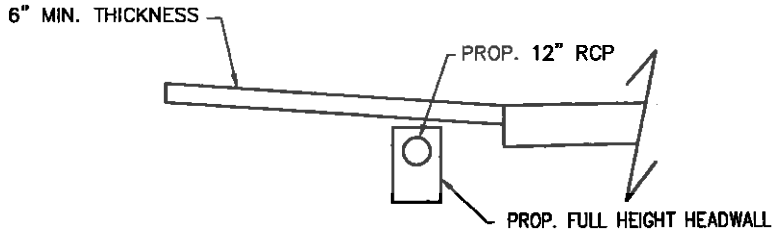
B. ALL NEW CONSTRUCTION OR MODIFICATIONS OF DRIVE APPROACHES REQUIRE A CONCRETE APPROACH, REGARDLESS OF WHETHER THERE IS A SIDEWALK OR NOT. THE NEW APPROACH IS TO GO FROM EDGE OF EXISTING STREET TO RIGHT OF WAY.

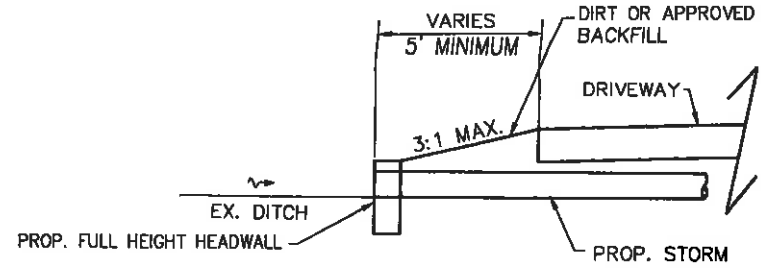
C. ANY DRAINAGE ISSUES WILL HAVE TO BE ADDRESSED, WHEN A DRIVEWAY IS INSTALLED OR MODIFIED.

D. IF THE EXISTING ROADWAY IS DISTURBED DURING CONSTRUCTION THE PROPERTY OWNER WILL BE *RESPONSIBLE TO REPAIR ANY DAMAGE TO THE* SATISFACTION OF THE CITY.

E. THE PROPERTY OWNER MUST SUMMIT A DRAWING TO BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION.

F. THE EXACT SIZE AND LOCATION OF THE PROPOSED CULVERT AND HEADWALLS WILL BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION.





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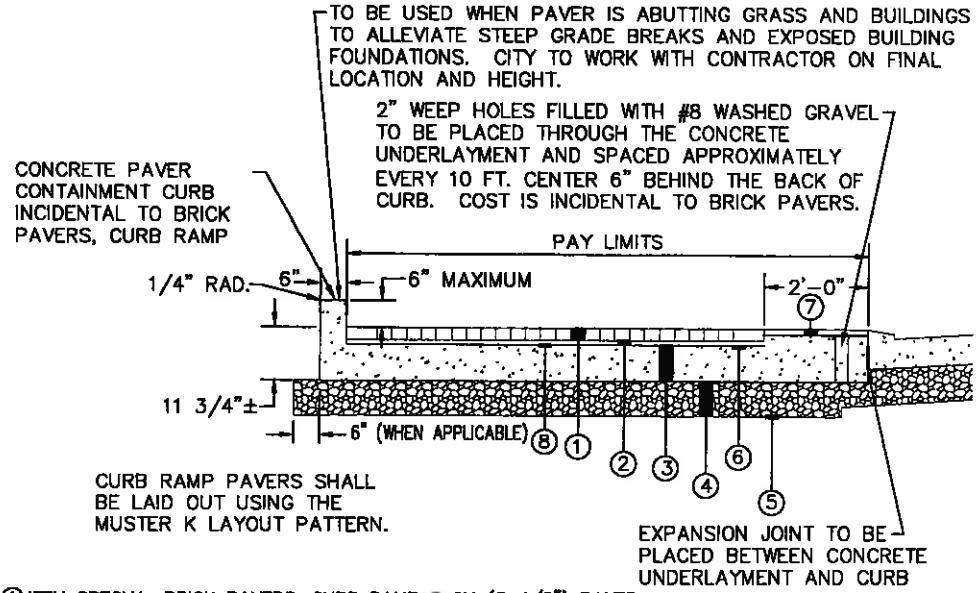


①ITEM SPECIAL, BRICK PAVERS, CURB RAMP 8 CM (3-1/8") PAVER

②1" SETTING BED (COST INCLUDED WITH ITEM SPECIAL, PAVER PAVING, CURB RAMP) (REFER TO SPECIFICATIONS)

③ITEM 608, 8" CONCRETE UNDERLAYMENT, CURE & SEAL WITH ONE COAT OF SUPER DIAMOND CLEAR OR WR MEADOWS, INC. CS-309-25, OR APPROVED EQUIVALENT PER MANUFACTURER'S RECOMMENDATION (COST INCLUDED WITH ITEM SPECIAL, BRICK PAVERS, CURB RAMP)

④ITEM 304, 8" AGGREGATE BASE SATURATE W/WATER PRIOR TO COMPACTION (COST INCLUDED WITH ITEM SPECIAL, BRICK PAVERS, CURB RAMP)

⑤ITEM 204, SUBGRADE COMPACTION, APP (COST INCLUDED WITH ITEM SPECIAL, BRICK PAVERS, CURB RAMP)

⑥ITEM 407, TACK COAT @ 0.10 GAL/S.Y. (COST INCLUDED WITH ITEM SPECIAL, BRICK PAVERS, CURB RAMP)

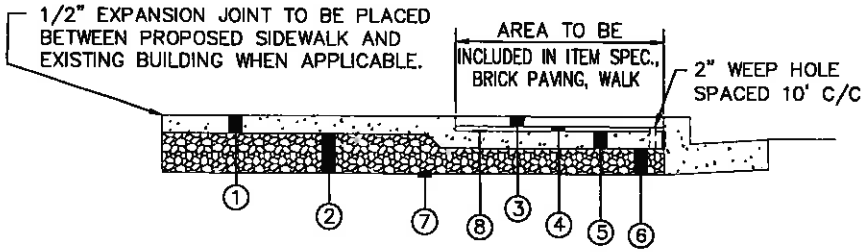
⑦TRUNCATED DOMES AND ADDITIONAL ITEM 608, CONCRETE UNDERLAYMENT (COST INCLUDED WITH ITEM SPECIAL, BRICK PAVERS, CURB RAMP)

⑧NEOPRENE MODIFIED ASPHALT ADHESIVE.

CONCRETE PAVERS, CURB RAMP

(REFER TO SPECIFICATIONS)

IF CURB IS REMOVED AND REPLACED DURING DRIVEWAY CONSTRUCTION, UNDERLAYMENT SHALL BE DOWELLED WITH #4 REBAR 6" INTO CURB AND GUTTER 18" O.C.



①ITEM 608, 5" CONCRETE WALK, AS PER PLAN APPLY 2 COATS OF SUPER DIAMOND CLEAR CURING OR WR MEADOWS, INC. CS-309-25, OR APPROVED EQUIVALENT PER MANUFACTURER'S RECOMMENDATION ON ALL SURFACES INCLUDING BACK IMMEDIATELY AFTER FINISHING SURFACES.

②ITEM 304, 8" AGGREGATE BASE IN 2 EQUAL 4" LIFTS, SATURATED W/ WATER PRIOR TO COMPACTION (COST TO INCLUDE ITEM 608, 5" CONCRETE SIDEWALK, AS PER PLAN).

③ITEM SPECIAL, BRICK PAVERS, WALK 8 CM (3-1/8") BRICK.

④1" ASPHALT SETTING BED, SAND MIX (COST INCLUDED WITH SPECIAL, CONCRETE PAVERS, WALK) (REFER TO SPECIFICATIONS).

⑤ITEM 608, 5" CONCRETE UNDERLAYMENT, CURE & SEAL WITH ONE COAT OF SUPER DIAMOND CLEAR OR WR MEADOWS, INC. CS-309-25 OR APPROVED EQUIVALENT (COST INCLUDED WITH SPECIAL, CONCRETE PAVERS, WALK).

⑥ITEM 304, 3-7/8" AGGREGATE BASE SATURATE W/ WATER PRIOR TO COMPACTION (COST INCLUDED WITH ITEM SPECIAL, CONCRETE PAVERS, WALK).

⑦ITEM 204, SUBGRADE COMPACTION, AS PER PLAN (COST INCLUDED WITH ITEM 608, 5"CONCRETE SIDEWALK, AS PER PLAN AND ITEM SPECIAL, CONCRETE PAVERS, WALK).

⑧NEOPRENE MODIFIED ASPHALT ADHESIVE.

ITEM SPECIAL, CONCRETE PAVERS, WALK

(REFER TO SPECIFICATIONS)

CONCRETE PAVERS, WALK NOTES

CONTRACTOR IS TO LAYOUT THE PATTERN WITH THE SPECIFIED CONCRETE PAVERS TO GET EXACT DIMENSIONS PRIOR TO POURING SIDEWALK TO ENSURE NO CUTTING OF THE CONCRETE PAVERS BETWEEN THE CURB AND SIDEWALK.

SIDEWALK CONCRETE PAVER, WALK BAND SHALL BE LAID OUT USING THE MUSTER D LAYOUT PATTERN (4-5-1/2" ROWS):
5-1/2"x5-1/2" TUMBLED OXFORD HAMPTON BLEND SQUARES
5-1/2"x8-1/4" TUMBLED OXFORD HAMPTON BLEND RECTANGLES
SOLDIER COARSE AROUND THE PERIMETER:
5-1/2"x8-1/4" TUMBLED OXFORD HAMPTON BLEND RECTANGLES

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CONCRETE PAVERS

DESCRIPTION: THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO INSTALL CONCRETE PAVERS AS SHOWN ON THE PLANS AND AS SPECIFIED HEREIN.

MATERIALS:

A. CONCRETE PAVERS

1. PROVIDE A TUMBLED CONCRETE PAVER OF QUALITY AND COLOR TO MATCH THE TONE AND HUE OF THE PAVERS LISTED BELOW, AS APPROVED BY THE ENGINEER. PROVIDE THREE REPRESENTATIVE PAVERS FOR COLOR APPROVAL.

CONCRETE PAVER SPECIFICATIONS:

TUMBLED OXFORD HAMPTON BLEND
DIMENSIONS FOR SQUARES 5–½" X 5–½" AS MANUFACTURED BY PAVERLOCK
DIMENSIONS FOR RECTANGLES 5–½" X 8–¼" AS MANUFACTURED BY PAVERLOCK
PAVER MUST MEET DIMENSIONS AND QUALITY. CONTRACTOR IS TO DISCARD ANY DEFECTIVE PAVERS.

COLOR BLENDING INSTRUCTIONS:

1. PAVERS ARE TO BE LAID FROM MULTIPLE PALLETS TO ACCOMPLISH A UNIFORM BLENDING OF COLORS.

2. THE MANUFACTURER SHALL BLEND THE PAVERS AT THE PLANT PRIOR TO PALLETIZING.

3. PAVER THICKNESS SHALL BE 3–⅛" (MINIMUM).

4. CEMENTIOUS MATERIALS

MATERIALS SHALL CONFORM TO THE FOLLOWING APPLICABLE ASTM SPECIFICATIONS:

PORTLAND CEMENTS – SPECIFICATION C 150
BLENDED CEMENTS – SPECIFICATION C 595
HYDRATED LIME, TYPE S – SPECIFICATION C 207
POZZOLANS – SPECIFICATION C 618

5. AGGREGATES SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS, EXCEPT THAT GRADING REQUIREMENTS SHALL NOT NECESSARILY APPLY:

NORMAL WEIGHT – SPECIFICATION C 33 FOR CONCRETE AGGREGATES

6. OTHER CONSTITUENTS

AIR–ENTRAINING AGENTS, COLORING PIGMENTS, INTEGRAL WATER REPELLENTS, FINELY GROUND SILICA, ETC. SHALL BE PREVIOUSLY ESTABLISHED AS SUITABLE FOR USE IN CONCRETE AND EITHER SHALL CONFORM TO ASTM STANDARDS, WHERE APPLICABLE, OR SHALL BE SHOWN BY TEST OR EXPERIENCE NOT TO BE DETRIMENTAL TO THE CONCRETE.

7. COMPRESSIVE STRENGTH

AT THE TIME OF DELIVERY TO THE WORK SITE, THE AVERAGE COMPRESSIVE STRENGTH SHALL BE NOT LESS THAN 8,500 PSI WITH NO INDIVIDUAL UNIT LESS THAN 7,500 PSI.

8. ABSORPTION

THE AVERAGE ABSORPTION SHALL NOT BE GREATER THAN 5%, WITH NO INDIVIDUAL UNIT GREATER THAN 7%.

9. PERMISSIBLE VARIATIONS IN DIMENSIONS

LENGTH OR WIDTH OF UNITS SHALL NOT DIFFER BY MORE THAN 1/16" FROM APPROVED SAMPLES. HEIGHTS OF UNITS SHALL NOT DIFFER BY MORE THAN 1/16" FROM THE SPECIFIED STANDARD DIMENSION.

10. VISUAL INSPECTION

ALL UNITS SHALL BE SOUND AND FREE OF DEFECTS THAT WOULD INTERFERE WITH THE PROPER PLACING OF UNIT OR IMPAIR THE STRENGTH OR PERMANENCE OF THE CONSTRUCTION.

11. THE EXPENSE OF INSPECTION AND TESTING SHALL BE BORNE BY THE CONTRACTOR.

B. BITUMINOUS SETTING BED SPECIFICATIONS

12. BITUMINOUS SETTING BED FOR CONCRETE PAVERS SHALL BE MADE FROM THE FOLLOWING MATERIALS:

a. ASPHALT CEMENT TO BE USED ON THE BITUMINOUS SETTING BED SHALL CONFORM TO ASTM DESIGNATION D 3381.

b. THE FINE AGGREGATE TO BE USED IN THE BITUMINOUS SETTING BED SHALL BE CLEAN, HARD SAND WITH DURABLE PARTICLES AND FREE FROM ADHERENT COATINGS, LUMPS OF CLAY, ALKALI SALTS, AND ORGANIC MATTER. IT SHALL BE UNIFORMLY GRADED FROM "COARSE" TO "FINE" AND ALL PASSING THE NO. 4 SIEVE AND MEET THE GRADATION REQUIREMENTS WHEN TESTED IN ACCORDANCE WITH THE STANDARD METHOD OF TEST FOR SIEVE OR SCREEN ANALYSIS OF FINE AND COARSE AGGREGATES ASTM DESIGNATION C 136 81.

c. THE DRIED FINE AGGREGATE SHALL BE COMBINED WITH HOT ASPHALT CEMENT, AND THE MIX SHALL BE HEATED TO APPROXIMATELY 300F AT AN ASPHALT PLANT. THE APPROXIMATE PROPORTION OF MATERIALS SHALL BE 7% ASPHALT CEMENT AND 93% FINE AGGREGATE. EACH TON SHALL BE APPORTIONED BY WEIGHT IN THE APPROXIMATE RATIO OF 145 LBS. ASPHALT TO 1,855 LBS. SAND. THE CONTRACTOR SHALL DETERMINE THE EXACT PROPORTIONS TO PRODUCE THE BEST POSSIBLE MIXTURE FOR CONSTRUCTION OF THE BITUMINOUS SETTING BED TO MEET CONSTRUCTION REQUIREMENTS.

2. NEOPRENE–MODIFIED ASPHALT ADHESIVE UNDER CONCRETE PAVERS: MASTIC (ASPHALT ADHESIVE) SHALL BE KARNAK #230–2% AF NEO–ASPHALT OR AN APPROVED EQUIVALENT.

A. CONSTRUCTION UNDERLAYMENT

FURNISH CONCRETE WITH FIBER MESH FOLLOWING ODOT SPECIFICATION ITEM 608 WALKS WITH THE ADDITIVE TO THE CONCRETE OF FIBER MESH TO MANUFACTURER'S RECOMMENDATION. EXPANSION JOINT SHALL BE PLACED BETWEEN THE CONCRETE UNDERLAYMENT AND CURB, CONCRETE WALK, AND EDGE RESTRAINT CURB. CONCRETE UNDERLAYMENT SHALL BE CURED WITH ONE COAT OF SUPER DIAMOND CLEAR. CONCRETE UNDERLAYMENT SHALL BE FINISHED TO THE PROPER UNIFORM GRADE WITH A SMOOTH TROWELED FINISH.

D. PAVING STONE SEALER AND JOINT SAND STABILIZER.

1. THE STONE SEALER AND JOINT SAND STABILIZING MATERIAL SHALL BE SUREBOND SB–1370 AS MANUFACTURED BY SUREBOND INC., 500 E. REMINGTON ROAD, SCHAUMBURG, IL 60173, TELEPHONE 847–843–1818.

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2. THE MATERIAL IS AN EPOXY-MODIFIED JOINT STABILIZING SEALER CAPABLE OF PENETRATING AND SEALING THE SURFACE OF THE PAVER WITHOUT CAUSING DISCOLORATION OR REDUCING THE STATIC COEFFICIENT OF FRICTION TO BELOW ACCEPTED FIGURES. THE SEALER WILL BOND THE JOINT SAND IN AN INTERLOCKING PAVER INSTALLATION.

CONSTRUCTION

A. QUALITY ASSURANCE

1. SOURCE QUALITY CONTROL

a. PROVIDE INDEPENDENT TESTING REPORTS AS PER ASTM C 1272 AND THIS SPECIFICATION FOR:

1) COMPRESSIVE STRENGTH
2) FREEZE-THAW CYCLES
3) SULFATES SOUNDNESS TEST ASTM C 88
4) ABSORPTION RATE, COEFFICIENT OF SATURATION
5) TOLERANCES ON DIMENSIONS
6) SKID RESISTANCE, ASTM E 274

2. ALL CONCRETE PAVER INSTALLATION SHALL BE PERFORMED BY THE CONTRACTOR'S EMPLOYEES, OR A SINGLE SUBCONTRACTOR WITH HIS EMPLOYEES. SKILLED CRAFTSMEN SHALL BE EMPLOYED FOR ALL CONCRETE PAVING WORK. THIRTY DAYS PRIOR TO CONCRETE PAVING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CITY FOR THEIR APPROVAL THE NAMES OF HIS EMPLOYEES OR THE NAME OF HIS SUBCONTRACTOR AND HIS EMPLOYEES WHO WILL PERFORM THE CONCRETE PAVING WORK, A LIST OF PROJECTS THAT WERE COMPLETED BY SAME, AND THE YEARS OF EXPERIENCE PERFORMING SIMILAR WORK.

B. PRODUCT DELIVERY, STORAGE, AND HANDLING

1. *DELIVER PACKAGED MASONRY MATERIALS IN THEIR* ORIGINAL, UNOPENED CONTAINERS CLEARLY LABELED WITH THE MANUFACTURER'S NAME AND BRAND DESIGNATION, THE TYPE, AND CLASS AS APPLICABLE.

2. HANDLE AND STORE CONCRETE PAVER MATERIALS IN A MANNER THAT PREVENTS DAMAGE OR INCLUSION OF ANY FOREIGN AND/OR DELETERIOUS MATERIAL. STORE UNDER WATERPROOF COVERS AND ON PLANKING CLEAR OF THE GROUND. LABEL EACH PALLET OF PAVERS WITH THE MANUFACTURER'S NAME, PALLET IDENTIFICATION NUMBER, QUANTITY OF PAVER, AND SHIPPING DATE.

3. TRANSPORT AND STOCKPILE AGGREGATES SEPARATELY ACCORDING TO THEIR SOURCES AND GRADATIONS. HANDLE AT ALL TIMES IN A MANNER THAT PREVENTS SEGREGATION OR CONTAMINATION WITH EARTH OR FOREIGN MATERIALS.

4. STORE EMULSIONS IN TEMPERATURES ABOVE 40°F.

C. WORKSITE CONDITIONS

1. DO NOT BEGIN INSTALLATION OF BITUMINOUS SETTING BED UNTIL PROVISIONS FOR CURING OF CONCRETE HAVE BEEN COMPLETED.

2. VERIFY THE AREAS TO RECEIVE CONCRETE PAVING WITH THE ENGINEER PRIOR TO PERFORMING ANY WORK, AND PROTECT ALL OTHER SURFACES FROM CONTAMINATION OF BITUMINOUS MATERIALS AND/OR DAMAGE AS A RESULT OF THIS WORK.

3. THE MINIMUM AMBIENT TEMPERATURE FOR INSTALLATION OF BITUMINOUS SETTING BED AND MODIFIED ASPHALT ADHESIVE IS 40°F.

D. CONTRACTOR CERTIFICATION

THE CONTRACTOR SHALL SUBMIT PRIOR TO AWARD A CERTIFICATE ON THEIR SIGNED LETTERHEAD STATING THE FOLLOWING WITH REGARD TO CONCRETE PAVER MANUFACTURING AND INSTALLATION:

1. *THEY HAVE EFFICIENT TECHNICAL ABILITY AND EXPERIENCE IN WORK AS SPECIFIED HEREIN.* PROVIDE A LIST OF AT LEAST 5 REPRESENTATIVE PROJECTS SIMILAR IN SIZE, SPECIFICATION, AND CIRCUMSTANCE COMPLETED IN THE LAST 5 YEARS. THE CITY WILL EVALUATE THESE PROJECTS FOR PREVIOUS WORKMANSHIP AND PERFORMANCE QUALIFICATIONS TO VERIFY THEY ARE QUALIFIED TO PERFORM THIS PROJECT IN THE HIGH WORKMANSHIP AND QUALITY EXPECTED.

2. THEY HAVE THE MANUFACTURING AND INSTALLATION CAPABILITY, AS OF THE ANTICIPATED DATE OF NOTICE TO PROCEED, TO MEET THE CONSTRUCTION SO AS NOT TO DELAY THE PROJECT.

3. THE CONTRACTOR SHALL BE AN INTERLOCKING CONCRETE PAVER INSTITUTE (I.C.P.I.) CERTIFIED INSTALLER.

E. SHOP DRAWINGS

1. THIRTY DAYS PRIOR TO INSTALLATION OF CONCRETE PAVER MATERIAL INCLUDING CONCRETE UNDERLAYMENT, THE CONTRACTOR SHALL SUBMIT SHOP, INSTALLATION, OR SETTING DRAWINGS REQUIRED FOR CONCRETE PAVING. AS PART OF THE SHOP DRAWING PROCESS, THE CONTRACTOR SHALL DO A TEST SECTION FOR THE RUNNING BOND PATTERN TO ENSURE THE SIDEWALK IS INSTALLED IN THE CORRECT WIDTH. THE SHOP DRAWINGS SHALL INCLUDE:

a. CONCRETE PAVER LAYOUT AND SAW CUTTING AND TRIM DETAILS DISCUSSION. THIS DISCUSSION SHALL OCCUR WITH THE CITY, CONCRETE PAVER CONTRACTOR, CONCRETE CONTRACTOR AND GENERAL CONTRACTOR TO TRY TO ELIMINATE ANY UNNECESSARY SAW CUTTING OF PAVERS, AND HAVING TIGHT TOLERANCE OF GAPS FOR AESTHETIC PURPOSE. THE PAVER WORK QUALITY CAN BE GREATLY ENHANCED WITH PRECISION CONCRETE WORK.

b. CONCRETE UNDERLAYMENT AND SIDEWALK LAYOUT FOR WIDTHS AND LENGTHS TO ENSURE MINIMAL CONCRETE CUTTING, ESPECIALLY AT INTERSECTIONS AND 3'-2 ½" STRIPS ON THE OUTSIDE OF SQUARE.

c. ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL JUSTIFY EACH DEVIATION IN A LETTER OF TRANSMITTAL.

d. ONE LEGIBLE FULL-SIZE REPRODUCIBLE OF EACH SHOP DRAWING.

2. THE CONTRACTOR SHALL NOT INSTALL ANY CONCRETE PAVER MATERIAL INCLUDING CONCRETE UNDERLAYMENT OR ABUTTING SIDEWALK UNTIL THE SHOP DRAWINGS HAVE BEEN APPROVED BY THE CITY.

F. SUBMITTALS TO THE CITY FOR APPROVAL

THE CONTRACTOR SHALL:

1. SUBMIT INDEPENDENT TESTING LABORATORY TEST REPORTS, MANUFACTURER'S SPECIFICATIONS, AND CERTIFICATION THAT MATERIALS MEET OR EXCEED SPECIFIED REQUIREMENTS PRIOR TO THE START OF ANY WORK.

2. SUBMIT 10 REPRESENTATIVE FULL-SIZE BRICKS OF EACH TYPE PAVER FOR COLOR APPROVAL.

2. SUBMIT BITUMINOUS SETTING BED MIX DESIGN.

3. SUBMIT CONTRACTOR'S CERTIFICATE.

4. SUBMIT MIX DESIGN FOR CONCRETE, ALL TYPICAL.

G. WEATHER LIMITATIONS

THE CONTRACTOR SHALL:

1. TAKE EXTRA PRECAUTIONS IN DRYING THE AGGREGATE, CONTROLLING THE TEMPERATURE OF THE DELIVERED MATERIAL, AND COMPACTING THE SETTING BED WHEN THE AIR TEMPERATURE FALLS BELOW 50°F.

2. PLACE NO BITUMINOUS SETTING BED WHEN SURFACES ARE WET OR WHEN THE TEMPERATURE OF EITHER THE AIR OR THE CONCRETE BASE SURFACE IS 40°F OR LOWER.

H. EXISTING SURFACES

THE CONTRACTOR SHALL:

1. CLEAN EXISTING DRY CONCRETE BASE OF ALL SURFACE DEBRIS, DIRT, OIL, AND OTHER FOREIGN MATERIALS.

2 CONTRACTOR IS RESPONSIBLE FOR ANY CONTAMINATION OF ADJACENT SURFACES INCLUDING CURB, SIDEWALK, AND BUILDINGS, ETC. DURING THE PLACEMENT OF SETTING BED, TACK COAT, OR NEOPRENE. THE CONTRACTOR WILL BE RESPONSIBLE FOR CLEANING OR REPLACING TO THE CITY OF TIPP CITY'S SATISFACTION ANY CONTAMINATION THAT MAY OCCUR.

I. PLACING BITUMINOUS SETTING BED

1. PRIOR TO PLACEMENT OF THE BITUMINOUS SETTING BED, THE EXISTING CONCRETE PAVEMENT BEING USED AS A BASE FOR THE CONCRETE PAVEMENT SHALL BE SWEPT COMPLETELY CLEAN AND SHALL BE LEVELED TO THE PROPER UNIFORM GRADE REQUIRED BY "PLANING" DOWN CONCRETE PATCHES THAT PROTRUDE HIGHER THAN ¼" ABOVE THE OTHERWISE UNIFORM SURFACE, AND BY FILLING IN DEPRESSIONS AND HOLES IN THE CONCRETE SURFACE WITH A SAND AND CEMENT GROUT CONSISTING OF 1 PART PORTLAND CEMENT TO 1-½ PARTS OF SAND. THE BITUMINOUS SETTING BED SHALL NOT EXCEED 1" IN DEPTH. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR THIS ARRANGEMENT OF THE WORK.

2. AFTER SURFACE PREPARATION OF CONCRETE BASE, A TACK COAT SHALL BE APPLIED (ONLY IN THE AREAS OF DRIVE APPROACHES) TO THE BASE AT THE RATE OF 0.05 GALLONS PER SQUARE YARD, IN ACCORDANCE WITH ODOT ITEM 407 TACK COAT. THE TACK COAT SHALL BE APPLIED BY HAND, AND BUILDING FACES, CURBS, AND CONCRETE SURFACES SHALL BE SHIELDED FOR PROTECTION FROM SPLASHING OR CONTAMINATION BY AIRBORNE BITUMINOUS PARTICLES. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT HE WILL NOT DEFACE THE ADJACENT BUILDINGS DURING THE APPLICATION OF THE TACK COAT. THE CONTRACTOR SHALL TAKE PRECAUTIONS SO THAT TACK IS NOT TRACKED ONTO ADJACENT PAVEMENT WEARING SURFACE.

3. TO INSTALL THE SETTING BED OVER THE PREPARED BASE SURFACE PLACE 3/4" DEEP CONTROL BARS DIRECTLY OVER THE BASE. IF GRADE MUST BE ADJUSTED, SET WOOD CHOCKS UNDER DEPTH CONTROL BARS TO PROPER GRADE. SET TWO (2) BARS PARALLEL TO EACH OTHER APPROXIMATELY 11' APART TO SERVE AS GUIDES FOR STRIKING *BOARD (12' LONG X 2" X 6" BOARD). THE DEPTH* CONTROL BARS MUST BE SET CAREFULLY TO BRING THE PAVERS, WHEN LAID, TO PROPER GRADE.

4. PLACE SOME BITUMINOUS BED BETWEEN THE PARALLEL DEPTH CONTROL BARS. PULL THIS BED WITH THE STRIKING BOARD OVER THESE BARS SEVERAL TIMES. AFTER EACH PASSAGE, LOW-POROUS SPOTS MUST BE SHOWERED WITH FRESH BITUMINOUS MATERIAL TO PRODUCE A SMOOTH, FIRM, AND EVEN SETTING BED. AS SOON AS THIS INITIAL PANEL IS COMPLETED, ADVANCE THE FIRST BAR TO THE NEXT POSITION, IN READINESS FOR STRIKING THE NEXT PANEL. CAREFULLY FILL UP ANY DEPRESSIONS THAT REMAIN AFTER REMOVING THE DEPTH CONTROL BARS AND WOOD CHOCKS.

5. THE SETTING BED SHALL BE ROLLED WITH A 1-TON POWER ROLLER TO A NOMINAL DEPTH OF 3/4" WHILE STILL HOT UNLESS THE CITY APPROVES ALTERNATIVE METHODS. THE THICKNESS SHALL BE ADJUSTED SO THAT WHEN THE CONCRETE PAVERS ARE PLACED, THE TOP SURFACE OF THE PAVERS WILL BE AT THE REQUIRED FINISHED GRADE.

6. PLACE ONLY THAT QUANTITY OF BITUMINOUS SETTING BED THAT IS REQUIRED FOR CONCRETE PAVER PLACEMENT ON THE SAME DAY. APPLY THE ASPHALT ADHESIVE TO THE SETTING BED ONLY AS REQUIRED FOR CONCRETE PAVER PLACEMENT ON THE SAME DAY.

7. AFTER THE SETTING BED HAS COOLED, A COATING OF 2% NEOPRENE-MODIFIED ASPHALT ADHESIVE SHALL BE APPLIED BY MOPPING OR SQUEEGEEING OR TROWELING OVER THE TOP SURFACE OF THE BITUMINOUS SETTING BED SO AS TO PROVIDE A BOND UNDER THE PAVERS. IF IT IS TROWELED, T THE TROWEL SHALL BE SERRATED WITH SERRATIONS NOT TO EXCEED 1/16".

8. AFTER THE MODIFIED ASPHALT ADHESIVE IS APPLIED, CAREFULLY PLACE THE PAVERS BY HAND IN STRAIGHT COURSES WITH HAND-TIGHT JOINTS AND UNIFORM TOP SURFACE. GOOD ALIGNMENT MUST BE KEPT, AND THE PATTERN SHALL BE THAT SHOWN ON THE PLANS.

9. PERMIT NO PEDESTRIAN OR VEHICULAR TRAFFIC ON THE BITUMINOUS SURFACE PRIOR TO CONCRETE PLACEMENT.

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J. INSTALLATION OF CONCRETE PAVERS

1. PLACE THE PAVERS BY HAND WHEN THE MODIFIED ASPHALT ADHESIVE IS DRY TO THE TOUCH. PLACE IN STRAIGHT COURSES, CONTROLLED BY ACCURATELY PLACED STRIKING LINES, WITH HAND–TIGHT JOINTS AND UNIFORM TOP SURFACE. KEEP GOOD ALIGNMENT AND THE PATTERN THAT IS SHOWN ON THE PLANS OR APPROVED SHOP DRAWINGS. ESTABLISH COURSING PERPENDICULAR TO STREET CENTERLINE.

2. PROTECT NEWLY LAID PAVERS AT ALL TIMES BY PANELS OF PLYWOOD ON WHICH THE INSTALLER STANDS. ADVANCE THESE PANELS OF PLYWOOD AS WORK PROGRESSES. KEEP THE PLYWOOD PROTECTION IN AREAS WHICH WILL BE SUBJECTED TO CONTINUED MOVEMENT OF MATERIALS AND EQUIPMENT.

K. PROTECTION OF FINISHED WORK

PERMIT NO TRAFFIC UNTIL INSTALLATION OF PAVING STONE SEALER AND JOINT SAND STABILIZER.

L. INSTALLATION OF PAVING STONE SEALER AND JOINT SAND STABILIZER

1. THE PAVERS SHALL BE INSTALLED AND JOINTS SANDED AND SURFACE COMPLETELY DRIED. GREAT CARE SHALL BE TAKEN TO ENSURE THAT THE JOINTS ARE FILLED TO THE TOP OF THE BOTTOM OF THE CHAMFER OR ¼" BELOW THE FINISHED ELEVATION OF THE PAVEMENT.

2. THE SURFACE SHALL BE CLEAN AND FREE FROM ANY STAINING, OIL, DUST, AND ANY LOOSE MATERIAL PRIOR TO THE APPLICATION OF PAVING STONE SEALER AND JOINT SAND STABILIZER. THE SURFACE OF THE PAVER AND THE JOINT SAND SHOULD BE DRY FOR ITS FULL DEPTH PRIOR TO *COMMENCING WORK.*

3. THE PAVING STONE SEALER JOINT AND SAND STABILIZER SHALL BE APPLIED EVENLY USING A LOW–PRESSURE BULK OR LOW–PRESSURE REGULATED BACKPACK SPRAYER WITH A NOZZLE PRESSURE NOT EXCEEDING 25 PSI AT A COVERAGE RATE OF 100 TO 150 SQUARE FEET PER GALLON. A SYSTEM USING AN ELECTRICAL SUMP PUMP DELIVERING NOT MORE THAN 5 GALLONS PER MINUTE IS RECOMMENDED. THE OPERATOR SHOULD FLOOD THE PAVEMENT WORKING IN ONE DIRECTION ASSISTED BY TWO OPERATORS WHO MUST WORK THE EXCESS MATERIAL INTO THE SAND JOINTS USING 24" RUBBER FLOOR SQUEEGEES TO ENSURE THAT ALL JOINTS ARE ADEQUATELY FLOODED AND THAT NO SURPLUS MATERIAL IS LEFT ON THE SURFACE.

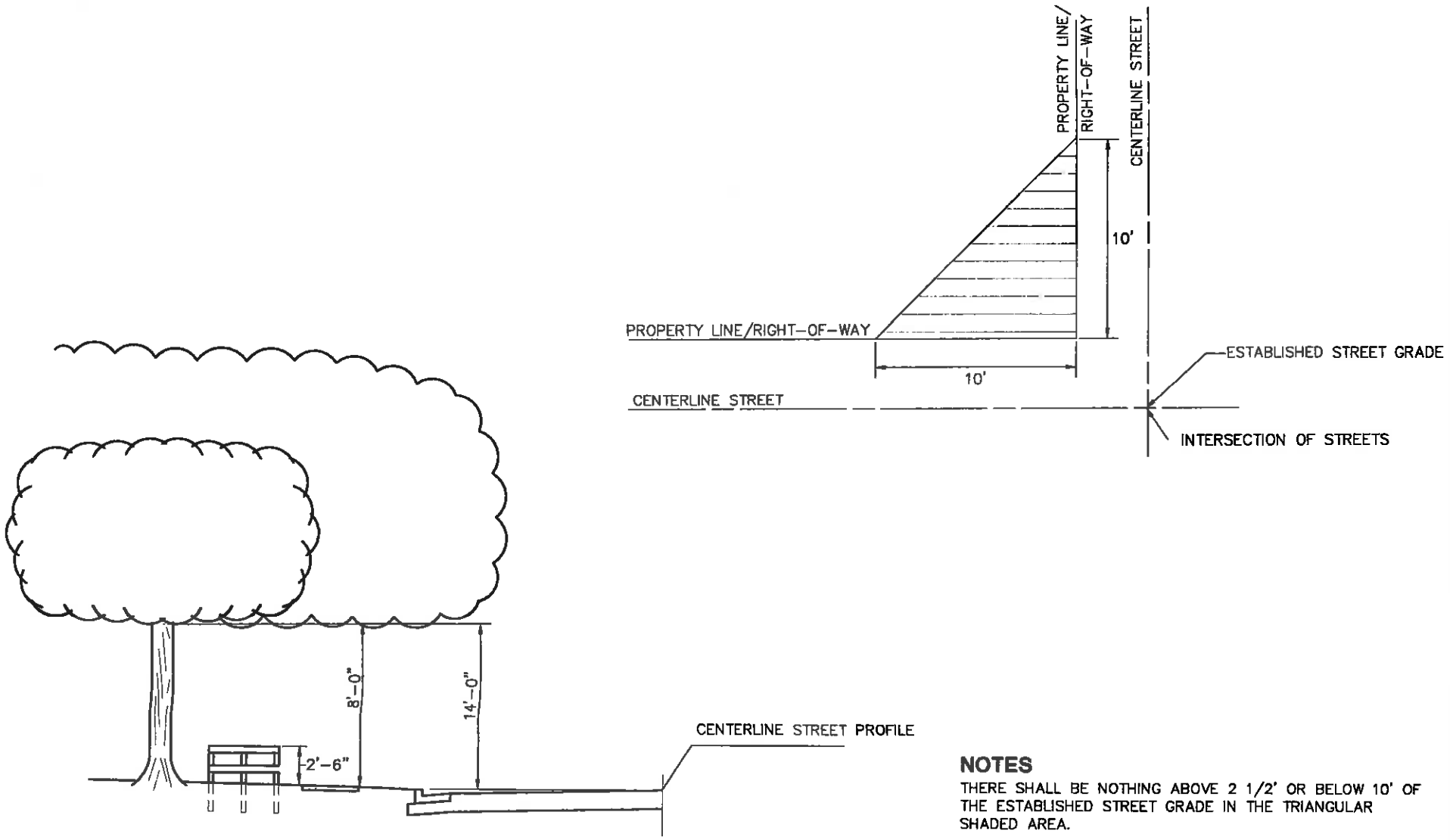
4. THE TREATED AREA SHOULD BE PROTECTED FROM RAIN OR MOISTURE AND NOT BE TRAFFICKED FOR 24 HOURS AFTER COMPLETING THE APPLICATION OF THE STABILIZER. WORK SHALL CEASE IF INCLEMENT WEATHER (RAIN OR STRONG WIND) WILL AFFECT THE STABILIZING OPERATION AND SHALL NOT RECOMMENCE UNTIL CONDITIONS IMPROVE AND THE JOINT SAND HAS DRIED SUFFICIENTLY TO ALLOW PENETRATION OF THE SEALANT.

SPARE PAVERS.

SPARE PAVERS, AS SPECIFIED HEREIN, TO BE USED BY THE OWNER FOR MAINTENANCE PURPOSES SHALL BE SUPPLIED TO THE OWNER'S STORAGE YARD. THE QUANTITY OF SPARE PAVERS SHALL BE 1 CUBE (110 S.F.) OF SQUARES AND 1 CUBE (110 S.F.) OF RECTANGLES.

METHOD OF MEASUREMENT.

CONCRETE PAVING WILL BE MEASURED BY THE SQUARE FOOT OF FINISHED SURFACE COMPLETE IN PLACE.



VISION CLEARANCE EXHIBIT

NOTES

THERE SHALL BE NOTHING ABOVE 2 1/2' OR BELOW 10' OF THE ESTABLISHED STREET GRADE IN THE TRIANGULAR SHADED AREA.

PROPERTY OWNER TO MAINTAIN MINIMUM 8' CLEARANCE ABOVE SIDEWALK 14' CLEARANCE ABOVE STREET.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	VISION CLEARANCE ON CORNER LOTS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 300-24

UTILITIES AGENTS

CITY OF TIPP CITY - WATER/WASTEWATER DEPT.
260 S. GARBER DRIVE
TIPP CITY, OH 45371
937-667-6305

CITY OF TIPP CITY - STREET DEPT.
260 S. GARBER DRIVE
TIPP CITY, OH 45371
937-667-6305

CITY OF TIPP CITY - ELECTRIC DEPT.
260 S. GARBER DRIVE
TIPP CITY, OH 45371
937-667-6305

NAWA
525 S. FIRST STREET
TIPP CITY, OH 45371
937-506-3200

DPL - POWER SERVICE
1900 DRYDEN ROAD
DAYTON, OHIO 45415
937-425-8850

VECTREN - GAS SERVICE
1300 EXPERIMENT FARM ROAD
TROY, OHIO 45373
937-440-1966

TIME WARNER CABLE - CABLE SERVICE
1450 EXPERIMENT FARM ROAD
TROY, OHIO 45373
937-339-4974

VERIZON - PHONE SERVICE
6464 WESTBROOK ROAD
CLAYTON, OHIO 45315
937-833-0459

OHIO UTILITIES PROTECTION SERVICE
3 WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-362-2764 or 811

SEEDING

A. ALL AREAS DESIGNATED FOR SEEDING SHALL HAVE A MINIMUM OF 6" OF TOPSOIL OVER THE ENTIRE AREAS. THE AREA SHALL BE RAKED, ROLLED, AND DRESSED READY FOR SEEDING. NO STONE OVER 1" IN SIZE PERMITTED.

DRAINS

A. ALL FIELD OR STORM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE REPAIRED AND PROVIDED WITH UNOBSTRUCTED OUTLETS AS APPROVED AND DIRECTED BY THE CITY AND MARKED ON THE RECORD DRAWINGS.

CONNECTIONS TO EXISTING PIPE

A. WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

UTILITY SEPARATION

A. ANY UNDERGROUND UTILITIES SUCH AS GAS, ELECTRIC, CABLE TV, TELEPHONE, ETC., SHALL HAVE 10' HORIZONTAL SEPARATION FROM ANY CITY UTILITY UNLESS OTHERWISE APPROVED.

UTILITIES

A. THE MAXIMUM LENGTH OF ANY UTILITY TRENCH TO BE OPEN DURING WORKING HOURS SHALL BE 250' UNLESS OTHERWISE APPROVED. ALL OVERNIGHT TRENCHES SHALL BE CLOSED/BARRICADED AS DIRECTED BY THE CITY.

COMPACTION METHODS

A. FLOODING SHALL NOT BE PERMITTED.

B. MECHANICAL DEVICES, HAND DEVICES, VIBRATING PLATES OR OTHER EQUIPMENT APPROVED BY THE CITY IS ACCEPTABLE 1' ABOVE PIPE IN UNIFORM LIFTS OF 12" (LOOSE DEPTH) OF EXISTING NATIVE MATERIAL AND 6" OF GRANULAR BACKFILL. THE HEIGHT OF LIFTS WILL DEPEND UPON THE TYPE OF MECHANICAL EQUIPMENT BEING USED. THE HEIGHT WILL BE 6" FOR HAND OPERATED TOOLS AND UP TO 12" ON EQUIPMENT MOUNTED TOOLS. THE COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE MATERIAL UNDER THE HAUNCH OF THE PIPE.

C. DENSITY FOR THE ABOVE METHODS SHALL BE NO LESS THAN THAT OF THE SURROUNDING GROUND UNLESS OTHERWISE SPECIFIED.

DISPOSAL OF SURPLUS MATERIAL

A. THE CITY MAY AT THEIR DISCRETION REQUIRE THAT SURPLUS MATERIAL BE DEPOSITED AT A LOCATION DESIGNATED WITHIN A TWO-MILE RADIUS OF THE WORK SITE.

TYPICAL NOTES - ALL SUBDIVISION CONSTRUCTION DRAWINGS

A. ALL CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH THE CITY ENGINEERING STANDARDS OR ODOT WHICHEVER IS MORE RESTRICTIVE.

B. ALL COMPACTION SHALL MEET THE CITY REQUIREMENTS. IF TESTING OF COMPACTED AREAS IS REQUESTED BY THE CITY, SAID TESTING SHALL BE PERFORMED AT THE EXPENSE OF THE DEVELOPER.

C. THE CITY WILL LOCATE AREAS IN NEED OF UNDERCUTTING.

D. ALL EMBANKMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF ASTM D698 STANDARD PROCTOR CURVE AND TESTED TO REPRESENT A DEPTH OF 12" UNLESS OTHERWISE SPECIFIED BY THE CITY.

E. ALL UNPAVED AREAS WITHIN THE STREET RIGHT-OF-WAY SHALL BE SEEDED WITHIN 48 HOURS AFTER THE CURB IS BACKFILLED. STAKED STRAW BALES MAY BE REQUIRED IN ADDITION TO SEEDING TO CONTROL EROSION IF REQUESTED BY THE CITY.

F. STORM WATER POLLUTION PREVENTION SHOULD BE A HIGH PRIORITY ON ALL CONSTRUCTION PROJECTS. ON ALL PROJECTS WHICH DISTURB AT LEAST 1 ACRE OF SOIL, A NPDES PERMIT IS REQUIRED FROM OEPA AND A COPY OF THE PERMIT MUST BE ON FILE AT THE CITY OFFICE BEFORE CONSTRUCTION BEGINS.

LOW STRENGTH MORTAR BACKFILL

A. IN SITUATIONS WHERE UTILITIES CROSS HEAVILY TRAVELED STREETS OR WHERE IT MAY BE DIFFICULT TO GET ADEQUATE COMPACTION OF GRANULAR MATERIAL, LOW STRENGTH MORTAR BACKFILL WILL BE REQUIRED PER ODOT ITEM 613 TYPE 1 ONLY. THE CITY MAY REQUIRE THIS TYPE OF BACKFILL AT THEIR DISCRETION WITH THE COST BEING BORNE BY THE CONTRACTOR

CITY OF TIPP CITY	GENERAL NOTES	REVISIONS:	DATE APPROVED: MAR.2015
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BORING/JACKING

A. MATERIALS.

CASING PIPE SHALL BE WELDED STEEL PIPE CONFORMING TO AWWA C-202.

B. INSTALLATION (CASING PIPE).

1. FURNISH PROCEDURE METHODS TO THE CITY FOR APPROVAL.
2. ALL METHODS AND PROCEDURES SHALL BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION.
3. ADEQUATELY SUPPORT ALL TRENCHES AND BORING/JACKING PITS.
4. INSTALL TO LINE AND GRADE SHOWN.

C. INSTALLATION (CARRIER PIPE).

1. PLACE CONDUITS IN CASING PIPE TO SAME RELATIVE POSITIONS AS ADJACENT DUCT BY USE OF SPACERS.
2. FILL THE SPACE BETWEEN CONDUITS INSIDE THE CASING PIPE WITH CLEAN SAND OR OTHER APPROVED MATERIALS AS PROVED BY THE CITY.

STEEL CASING PIPE

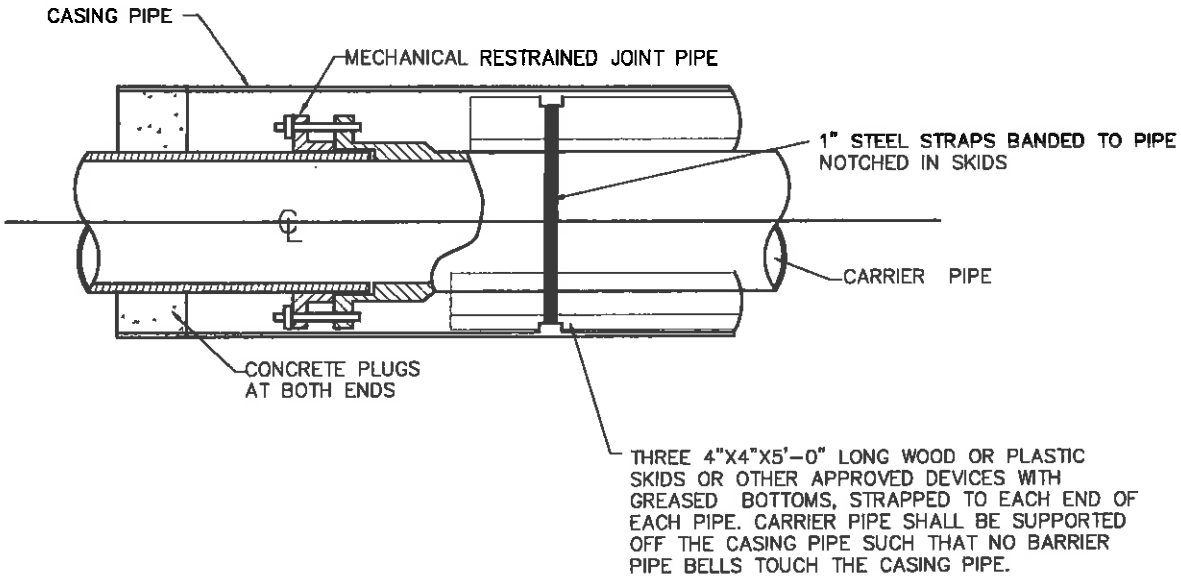
A. STEEL PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI.

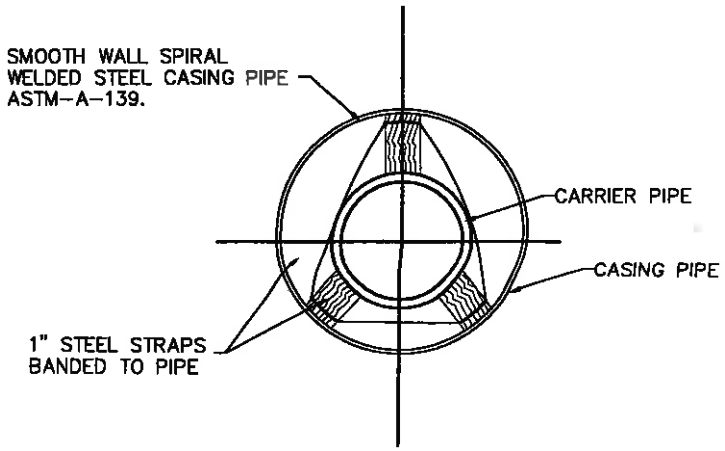
B. JOINTS BETWEEN THE SECTIONS OF PIPE SHALL BE FULLY WELDED AROUND THE COMPLETE CIRCUMFERENCE OF THE PIPE.

C. SIZE-A MINIMUM OF 4" GREATER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE.

D. A STEEL CASING PIPE WILL BE REQUIRED FOR STORM SEWER, WATERMAIN, AND SANITARY SEWER.

DIAMETER NOMINAL (INCHES)	NOMINAL THICKNESS (INCHES)
10 AND UNDER	0.188
12 & 14	0.250
16	0.281
18	0.312
20 & 22	0.344
24	0.375
26	0.406
28	0.438
30	0.469
32	0.500
34 & 36	0.532
38	0.562
40	0.594
42	0.625
44 & 46	0.657
48	0.688
50	0.719
52	0.750
54	0.781
56 & 58	0.812
60	0.844
62	0.875
64	0.906
66 & 68	0.938
70	0.969
72	1.000





CITY OF TIPP CITY

CHOICE ONE ENGINEERING

CASING PIPE DETAIL

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NOTES

LISTED BELOW ARE CONSTRUCTION REGULATIONS GOVERNING CONSTRUCTION ACTIVITIES IN THE VICINITY OF TREES. THE FOLLOWING REGULATIONS APPLY TO ALL TYPES OF CONSTRUCTION ACTIVITY, BEING PERFORMED WITHIN OR IN CLOSE PROXIMITY TO PUBLIC RIGHT-OF-WAY AND EASEMENTS.

A. FOR TREES MEASURING 38 INCH CIRCUMFERENCE (EQUIVALENT 12" DIAMETER) OR LESS, SOIL EXCAVATION WORK OR ROOT CUTTING SHALL NOT OCCUR CLOSER THAN 3 FEET FROM THE OUTER BARK OF THE TREE. THE CIRCUMFERENCE OF THE TREE HERE AND ELSEWHERE IN THESE REQUIREMENTS SHALL BE TAKEN 2 FEET ABOVE GROUND LEVEL. FOR MULTI-STEMMED TREES, THE CIRCUMFERENCE SHALL BE TAKEN AT THE NARROWEST POINT WITHIN THE FIRST 2 FEET ABOVE THE GROUND SURFACE.

B. FOR TREES MEASURING GREATER THAN 38 INCH CIRCUMFERENCE, SOIL EXCAVATION WORK OR ROOT CUTTING SHALL NOT OCCUR CLOSER THAN THE DISTANCE EQUAL TO THE CIRCUMFERENCE OF THE TREE, OR 6 FEET, WHICHEVER IS LESS.

C. SOIL EXCAVATION WORK IS PERMITTED CLOSER THAN THE DISTANCE PARAMETERS ESTABLISHED UNDER NOTES A&B ABOVE, PROVIDED ALL EXCAVATION OF SOIL IS ACCOMPLISHED BY HAND SHOVEL OR AUGER, AND NO ROOTS GREATER THAN 2 INCH DIAMETER ARE SEVERED.

D. IF THERE IS AN INABILITY TO COMPLY WITH THE REQUIREMENTS ESTABLISHED UNDER THE AFOREMENTIONED THREE SITUATIONS, A REPRESENTATIVE FROM THE CITY SHALL BE CALLED TO THE TREE SITE TO MAKE AN INSPECTION AND RECOMMENDATION PERTAINING TO THE NEED TO REMOVE THE TREE. UNLESS OTHER PROVISIONS ARE SPECIFIED; IN THE EVENT REMOVAL BECOMES NECESSARY, TREES REMOVED BY THE CITY FORCES OR CITY CONTRACT WILL BE REMOVED AT THE CITY'S COST, AND MAY BE REPLACED BASED UPON REVIEW OF THE SITE. TREES REQUIRED TO BE REMOVED BY PRIVATE CONTRACTORS, INVESTOR-OWNED PUBLIC UTILITY COMPANIES, OR BY OTHERS WHO ARE PERMITTED TO PERFORM MAINTENANCE AND REPAIR WORK IN PUBLIC RIGHT-OF-WAY AND EASEMENT AREAS SHALL REMOVE SAID TREES AT THEIR COST AND EFFORT AND FURTHERMORE, SHALL REPLACE THAT TREE WITH A SUITABLE SIZE AND VARIETY PER THE REQUIREMENTS OF THE CITY.

E. IN THE EVENT REMOVAL OF THE TREE IS REQUIRED BY PRIVATE AND PUBLIC UTILITIES, CONTRACTORS AND OTHERS UNDER LIFE THREATENING OR RELATED EMERGENCY SITUATIONS, REMOVAL OF THE TREE(S) IS AUTHORIZED WITHOUT WRITTEN CITY AUTHORIZATION, PROVIDING PROPER FOLLOW-UP WRITTEN DOCUMENTATION IS PROVIDED IN ACCORDANCE WITH THE CITY PUBLIC RIGHT-OF-WAY OPENING AND EXCAVATION AND REPLACEMENT OF THE TREE(S) IS SCHEDULED TO THE SATISFACTION OF THE CITY.

F. CONSTRUCTION TECHNIQUES TO REPAIR OR REPLACE SIDEWALKS AND CURBS MAY INVOLVE CUTTING OR SEVERING TREE ROOTS, IN WHICH THE ABOVE CRITERIA MAY APPLY. HOWEVER, OTHER INNOVATIVE CONSTRUCTION TECHNIQUES TO REPAIR OR REPLACE SIDEWALKS AND CURBS, SUCH AS GRINDING, LANDSCAPE PAVERS, CONCRETE RAMPS, ETC. TO PROTECT TREE ROOTS TO AVOID THE REQUIREMENT OF TREE REMOVAL MAY BE APPROVED BY THE CITY AND WILL BE BASED ON EACH INDIVIDUAL REQUEST.

G. IF AN EXISTING TREE LOCATED WITHIN THE CURB LAWN AREA IS THE CAUSE OF SIDEWALK PROBLEMS DUE TO ROOT AND/OR TRUNK GROWTH RESULTING IN THE NEED TO REMOVE ROOTS 3" OR GREATER IN DIAMETER OR A VITAL PORTION OF THE TRUNK, THE CITY'S TREE BOARD MAY APPROVE/REQUIRE REMOVAL OF THE TREE. IF THIS OCCURS, THE CITY WILL NOTIFY AFFECTED OWNERS PRIOR TO THE NECESSARY REMOVAL OF ANY TREES AND THE TREES WILL THEN BE REMOVED BY THE CITY AT NO COST TO THE PROPERTY OWNERS.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	# CONSTRUCTION NEAR TREES	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 500-4

NOTES

A. NO PERSON SHALL DEMOLISH ANY BUILDING OR STRUCTURE OVER 200 SQ. FT. WITHOUT SECURING A DEMOLITION PERMIT FROM THE CITY MANAGER. A PERMIT FEE WILL BE REQUIRED OF EACH APPLICANT.

B. AS A CONDITION OF RECEIVING A DEMOLITION PERMIT, THE OWNER, AGENT OR PERSON IN CONTROL OF A BUILDING OR STRUCTURE TO BE DEMOLISHED SHALL NOTIFY, IN WRITING, THE APPROPRIATE UTILITIES OR PUBLIC AUTHORITIES SERVING THE BUILDING OR STRUCTURE REGARDING THE PERSON'S INTENTIONS TO DEMOLISH THE BUILDING OR STRUCTURE. SUCH NOTICE SHALL INCLUDE A REQUEST THAT THE UTILITIES BE DISCONNECTED WITHIN SEVEN DAYS. THE OWNER, AGENT OR PERSON IN CONTROL OF THE BUILDING OR STRUCTURE TO BE DEMOLISHED, OR THE UTILITY COMPANY, SHALL PROVIDE EVIDENCE TO THE CITY THAT THE UTILITIES HAVE BEEN DISCONNECTED. THE PERMIT WILL NOT BE ISSUED UNTIL ALL PROPER VERIFICATION HAS BEEN RECEIVED. PROOF OF VERIFICATION THAT SERVICES HAVE BEEN DISCONNECTED CAN BE FOUND ON THE APPLICATION FOR A DEMOLITION PERMIT.

C. PRIOR TO THE ISSUANCE OF A DEMOLITION PERMIT, THE OWNER, AGENT OR PERSON WITH CONTROL OF THE PROPERTY SUBJECT TO DEMOLITION SHALL POST WITH THE CITY A PERFORMANCE BOND, CASH DEPOSIT OR OTHER SURETY APPROVED BY THE PUBLIC WORKS DIRECTOR TO ASSURE THE CITY THAT THE DEMOLITION WORK WILL PROCEED AS PERMITTED. THE VALUE OF THE SURETY SHALL NOT EXCEED THE COST ASSOCIATED WITH THE DEMOLITION AND SITE RESTORATION. THE TERMS OF THE SURETY SHALL PROVIDE THAT THE CITY MAY RETAIN OR CLAIM THE SURETY PROCEEDS IF THE PERMIT HOLDER FAILS TO PERFORM THE DEMOLITION ACTIVITIES IN ACCORDANCE WITH THE PERMIT GRANTED. THE VALUE OF THE SURETY MAY BE REDUCED DURING THE COURSE OF THE DEMOLITION WORK, AT THE SOLE DISCRETION OF THE CITY ADMINISTRATOR, IF, IN THE ESTIMATION OF THE CITY ADMINISTRATOR, SUFFICIENT SURETY REMAINS TO ASSURE COMPLETION OF THE DEMOLITION AND SITE RESTORATION ACTIVITY.

D. *DURING THE COURSE OF THE DEMOLITION ACTIVITY, THE* OWNER, AGENT OR PERSON IN CONTROL OF THE PROPERTY SUBJECT TO THE DEMOLITION SHALL TAKE STEPS TO ENSURE THE SAFETY OF THE GENERAL PUBLIC. THE PROPOSED STEPS SHALL BE IN COMPLIANCE WITHIN GENERALLY ACCEPTED BUILDING INDUSTRY SAFETY PRACTICES AS MAY BE REFLECTED IN BUILDING CODES APPLICABLE IN THE STATE OF OHIO AND IN STANDARDS OF THE CITY FOR CONSTRUCTION SITE SAFETY MEASURES.

E. FOLLOWING THE COMPLETION OF DEMOLITION WORK, THE OWNER, AGENT OR PERSON IN CONTROL OF THE PROPERTY SUBJECT TO THE DEMOLITION ACTIVITY SHALL PROVIDE FOR THE RESTORATION OF THE SITE SO AS TO ADDRESS SAFETY AND NUISANCE CONCERNS.

1. ALL SUCH SITES SHALL BE BROUGHT TO A LEVEL OR OTHER GRADE DETERMINED TO BE APPROPRIATE BY THE CITY.

2. ALL SURFACE IRREGULARITIES, WELLS, SEPTIC TANKS, BASEMENTS, CELLARS, SIDEWALKS, VAULTS, OR COAL CHUTES REMAINING AFTER DEMOLITION SHALL BE FILLED WITH COMPACTABLE MATERIALS CONSISTENT WITH CITY STANDARDS.

3. THE PARTY SECURING THE DEMOLITION PERMIT SHALL PROVIDE FOR THE DISPOSAL OF THE DEBRIS ASSOCIATED WITH THE DEMOLITION AND/OR REHABILITATION WORK. THE DEBRIS MUST BE PLACED IN AN APPROPRIATE CONTAINER FOR REMOVAL BY A PRIVATE CONTRACTOR, OR ANOTHER ARRANGEMENT SHALL BE MADE FOR THE DISPOSAL OF THE DEBRIS ON AT LEAST A WEEKLY BASIS. NO PROPERTY OWNER OR PERMIT HOLDER SHALL PERMIT THE NON-CONTAINERIZED ACCUMULATION OF DEMOLITION DEBRIS ON ANY PROPERTY IN THE CITY FOR A PERIOD IN EXCESS OF SEVEN CALENDAR DAYS. ALL DEBRIS AND MATERIAL ASSOCIATED WITH THE DEMOLITION WORK MUST BE REMOVED FROM THE PROPERTY AND DISPOSED OF IN AN OEPA APPROVED CONSTRUCTION/DEMOLITION DEBRIS LANDFILL.

4. ALL SANITARY SEWER LEADS THAT SERVED THE SUBJECT DEMOLISHED BUILDING OR STRUCTURE MUST BE EFFECTIVELY PLUGGED WITH CONCRETE AT THE PROPERTY LINE, OR AS MAY BE REQUIRED BY THE CITY AND INSPECTED BY THE CITY. ALL WATER SERVICES ARE TO BE EXCAVATED AT THE MAINLINE CONNECTION POINT (CORP STOP), CORP STOP CLOSED AND REMOVED AS DIRECTED BY THE CITY.

5. AS SOON AS WEATHER PERMITS, THE SITE SHALL BE PREPARED (INCLUDING THE APPLICATION OF TOPSOIL IF NECESSARY TO ENSURE GROWTH), AND SOD, GRASS SEED OR OTHER GROUND COVER MATERIAL SHALL BE INSTALLED TO ADDRESS SOIL EROSION CONTROL. THE CITY MAY REQUIRE THAT STRAW OR MULCH MATERIAL BE PLACED ON THE SITE THAT IS SEEDED TO PREVENT EROSION AND ENHANCE THE LIKELIHOOD OF SUCCESSFUL GROWTH.

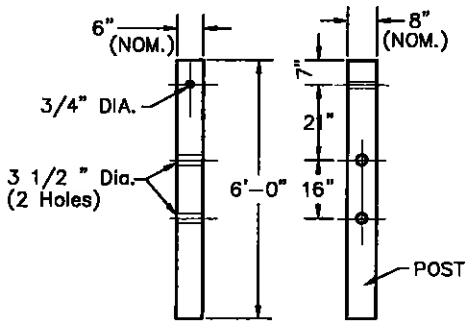
F. THE PARTY RECEIVING THE DEMOLITION PERMIT MUST COMPLETE THE DEMOLITION ACTIVITY WITHIN THIRTY CALENDAR DAYS FROM THE RECEIPT OF THE PERMIT. THE TIME LIMIT MAY BE EXTENDED AT THE DISCRETION OF THE CITY. THE PETITIONER MUST PROVIDE EVIDENCE TO SHOW THAT EXTENUATING CIRCUMSTANCES PROHIBITED THE COMPLETION OF THE DEMOLITION WORK IN THE THIRTY-DAY TIME PERIOD.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	DEMOLITION PERMIT REGULATIONS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 500-5

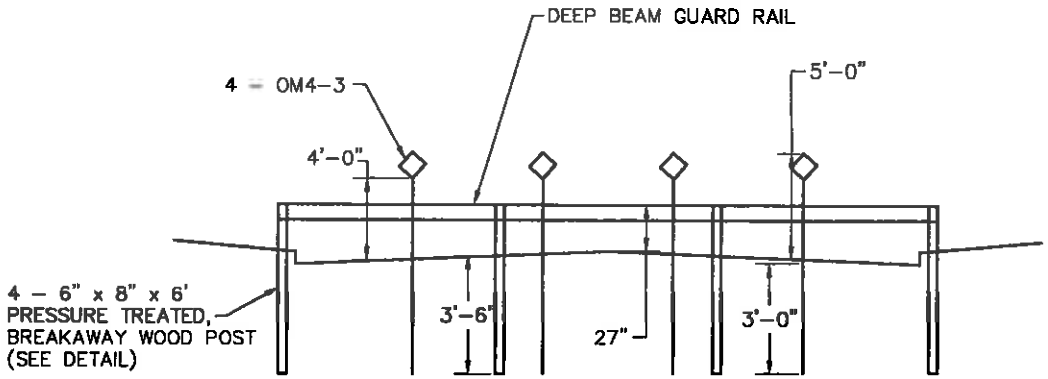
INSTALL W14-2 (30"x30") "NO OUTLET" DIAMOND SHAPED HIGH INTENSITY REFLECTORIZED YELLOW SIGN ON THE RIGHT SIDE APPROXIMATELY 35' TO 40' BEYOND THE LAST INTERSECTION WITH ANOTHER STREET. BOTTOM OF SIGN SHALL BE 7' ABOVE TOP OF GROUND. SIGN SUPPORT SHALL BE AN 8'-3 POUND GREEN SIGN POST, DRIVEN IN SOIL 4' DEEP, AND OVER LAPPED WITH A 7'-2 POUND GREEN SIGN POST TO OBTAIN THE REQUIRED 7' HEIGHT.

RED REFLECTORIZED SIGN SHALL BE OM4-3 (18"x18") DIAMOND SHAPED PANEL TYPE 4 OBJECT MARKER. BOTTOM OF SIGN SHALL BE 4' ABOVE TOP OF PAVEMENT. SIGN SUPPORT SHALL BE AN 8'-2 POUND GREEN SIGN POST, DRIVEN IN SOIL 3' DEEP.

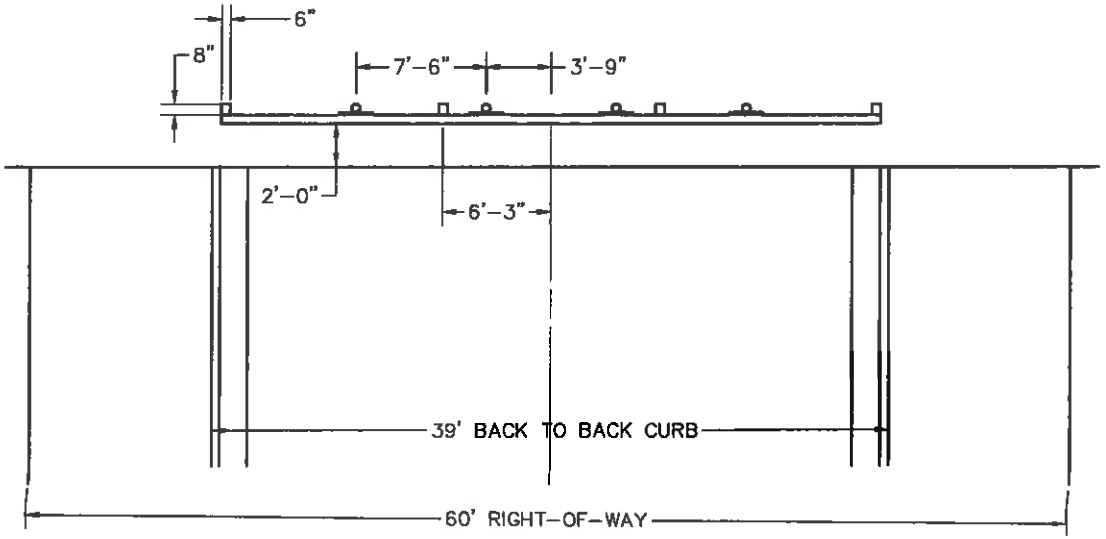
DEEP BEAM GUARD RAIL TO BE INSTALLED 27" ABOVE TOP OF PAVEMENT AND A MAXIMUM OF 2' FROM EDGE OF PAVEMENT.



Type I - Breakaway Post



Section View



PERMANENT END OF STREET BARRICADE DETAIL

TEMPORARY BARRICADE SHALL BE SAME AS ABOVE UNLESS OTHERWISE APPROVED BY CITY IN WRITING.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	TRAFFIC CONTROL DEVICES	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 500-6

TRAFFIC CONTROL DEVICE NOTES

A. ALL TRAFFIC CONTROL DEVICES SHALL BE PER THE LATEST REVISION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND SHALL BE APPROVED BY THE CITY BEFORE INSTALLATION.

B. ALL SIGNS SHALL BE OF HIGH INTENSITY REFLECTIVE SHEETING APPLIED ON 0.080" BONDERIZED AND ANODIZED ALUMINUM UNLESS OTHERWISE APPROVED BYT THE CITY PRIOR TO INSTALLATION.

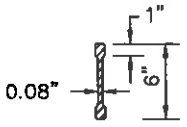
C. SIGN POST SHALL BE STEEL "U" CHANNEL TYPE, PAINTED GREEN AND WEIGHING A MINIMUM OF 2 LBS PER FOOT TO TOP SECTIONS AND 3 LBS PER FOOT FOR BOTTOM SECTIONS. CERTAIN LOCATIONS MAY REQUIRE GALVANIZED SQUARE POST, PLEASE CONTACT CITY FOR REQUIREMENT. POST LOCATED AT INTERSECTIONS SHALL PROVIDE GOOD VISIBILITY FROM ALL APPROACHES.

D. STREET NAME SIGNS SHALL BE MADE OF "EC" FILM OVER HIGH INTENSITY WHITE SHEETING. EXCEPT FOR MAIN STREET AND THE DOWNTOWN HISTORIC DISTRICT, ALL STREET NAME SIGNS SHALL APPEAR AS WHITE LETTERS ON A GREEN BACKGROUND WITH A WHITE BORDER. MAIN STREET AND THE DOWNTOWN HISTORIC DISTRICT SIGNS SHALL APPEAR AS BLACK LETTERS AND A WHITE BACKGROUND WITH A BLACK BORDER, EXCEPT FOR OVERHEAD MOUNTED SIGNS ON MAIN STREET WHICH SHALL APPEAR AS WHITE LETTER ON A BLACK BACKGROUND WITH A WHITE BORDER. LETTERS SHALL BE SERIES "C" STYLE. WHENEVER POSSIBLE, STREET NAME SIGNS SHALL BE MOUNTED ON THE SAME POST AS THE STOP SIGN.

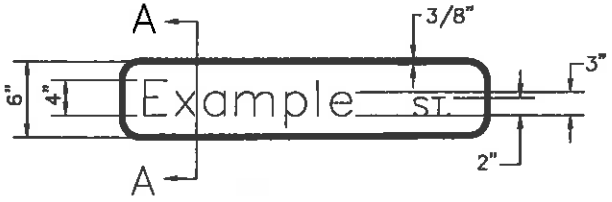
E. STREET NAME SIGNS SHALL CONSIST OF A COMBINATION OF UPPER AND LOWER CASE LETTERS IN ACCORDANCE WITH THE FOLLOWING TABLE (MINIMUMS):

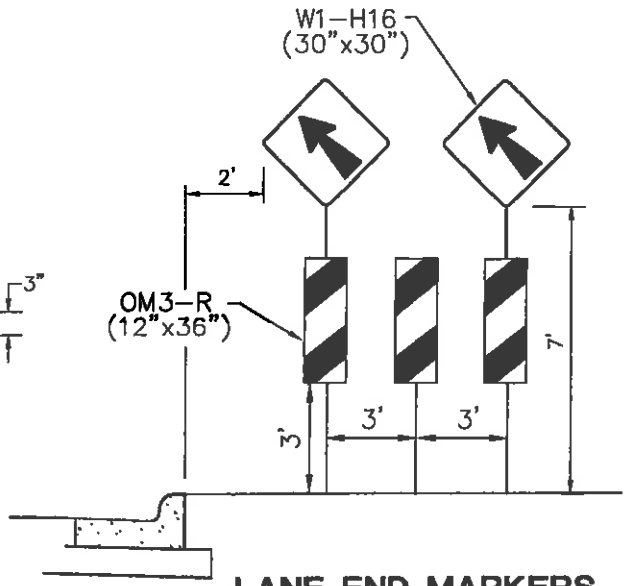
POSTED SPEED	UPPER CASE	LOWER CASE	PREFIX/ SUFFIX	BLADE SIZE
25 OR LESS	4"	3"	4"	6"
30 TO 40	6"	4.5"	6"	9"
45 OR MORE	8"	6"	8"	12"

F. 6" AND 9" BLADES SHALL BE MADE OF EXTRUDED ALUMINUM ALLOY. LARGER BLADES SHALL BE OF FLAT SHEET.

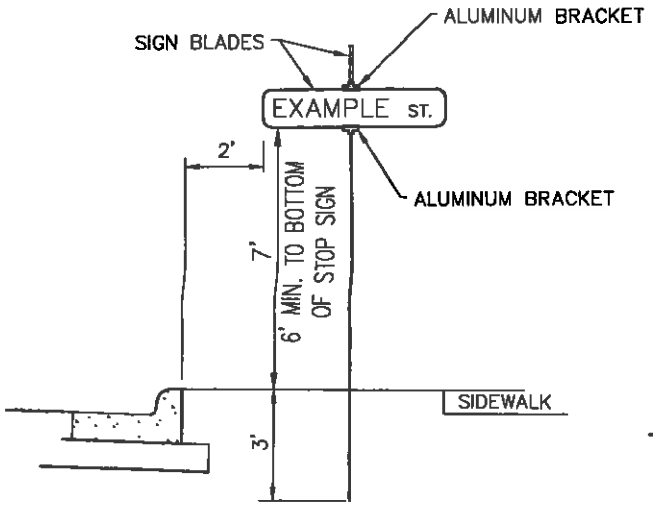


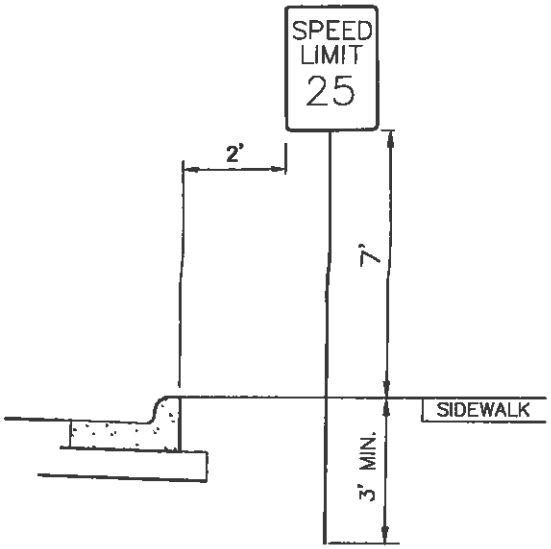
SECTION A–A





LANE END MARKERS





CITY OF TIPP CITY

CHOICE ONE ENGINEERING

TRAFFIC CONTROL DEVICES

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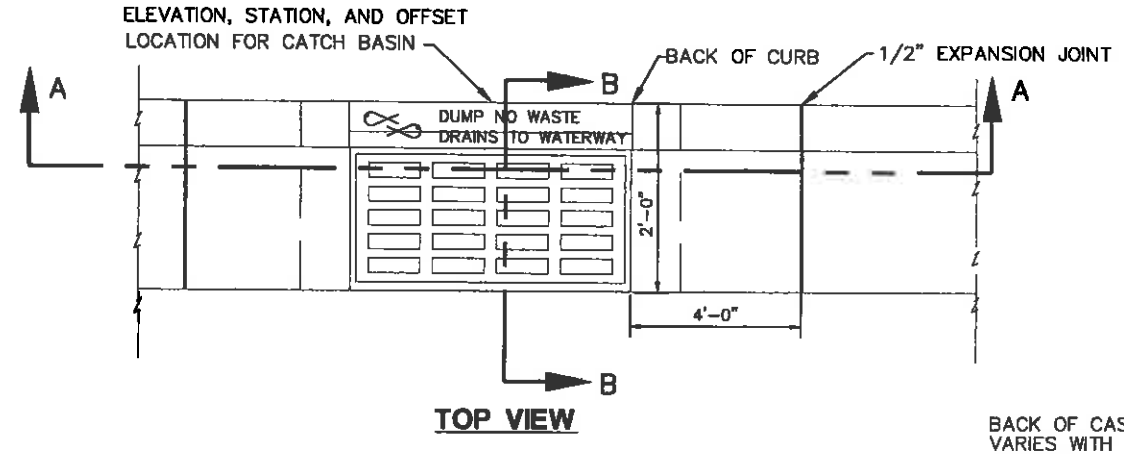
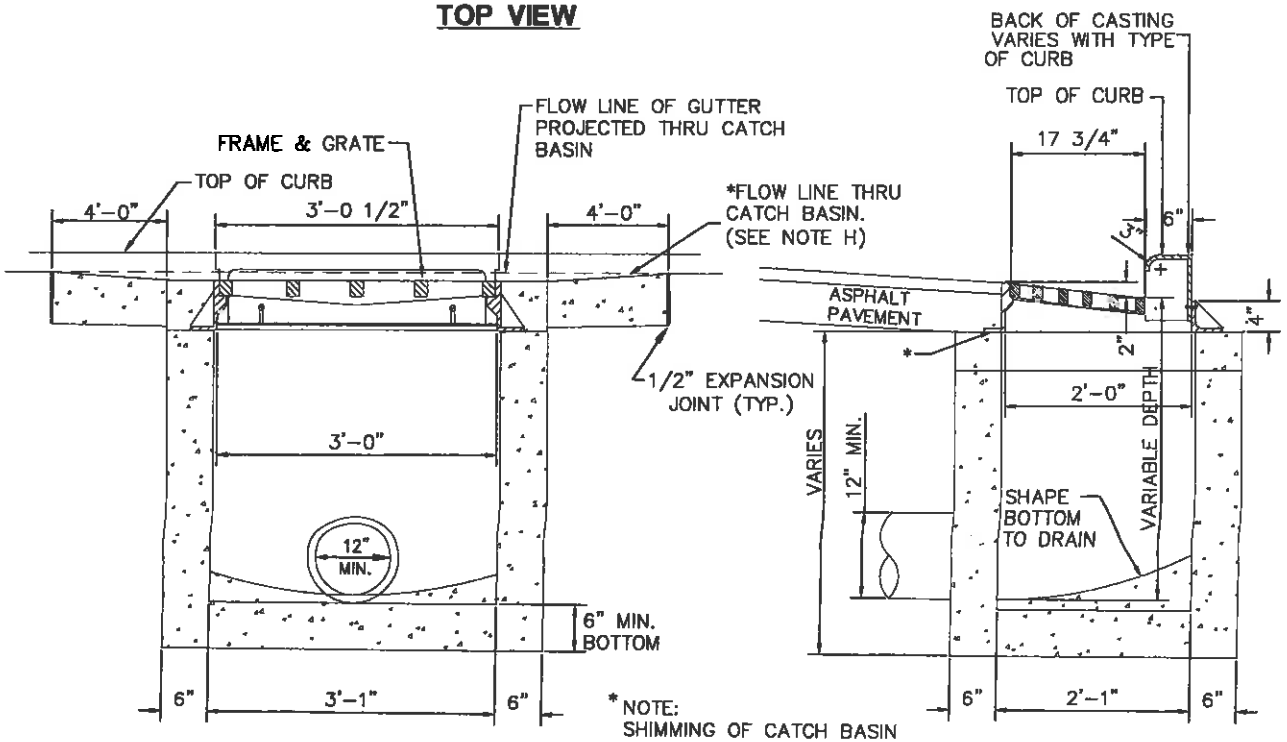


TOP VIEW



SECTION A-A

SECTION B-B

* NOTE:
SHIMMING OF CATCH BASIN FRAME MAY BE REQUIRED TO KEEP LIP OF GUTTER CONSISTENT.

NOTES

A. AS OF JANUARY 1, 2003 THE FOLLOWING TEXT SHALL BE CAST INTO THE TOP OF THE GRATE:
"DUMP NO WASTE" AND "DRAINS TO WATERWAY" TEXT SHALL BE PRINTED IN BOLD, CAPITAL LETTERS WITH A MINIMUM HEIGHT OF 1/2 INCH. "WATERWAY" MAY BE SUBSTITUTED WITH "STREAM", "RIVER", ETC. ACTUAL PLACEMENT AND LOGO MAY VARY PER MANUFACTURER.

B. CASTING SHALL BE EAST JORDAN 7030 OR NEENAH R-3246 OR EQUIVALENT.

C. FOR TYPE 2 COMBINATION CURB AND GUTTER THE BACK SHALL BE EAST JORDAN TYPE T4 OR NEENAH (3 INCH RADIUS) (R-3246-I).

D. FOR TYPE 1 COMBINATION ROLL CURB AND GUTTER THE BACK SHALL BE EAST JORDAN TYPE T2 OR NEENAH (MOUNTABLE CURB) (R-3246-E).

E. CATCH BASIN IN DRIVE APPROACHES TO BE AVOIDED, IF POSSIBLE. THE BACKS SHALL BE EAST JORDAN TYPE T3 OR NEENAH (R-3246-1 WITH CURB PLATE).

F. STANDARD GRATE SHALL BE EAST JORDAN TYPE M2, NEENAH TYPE C, OR EQUIVALENT. ALL BAR EDGES TO BE ROUNDED 1/8 INCH RADIUS.

G. CONCRETE, CAST-IN-PLACE, TO BE CLASS C. PRECAST CONSTRUCTION PERMITTED AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13 WITH 6±2% AIR VOID CONTENT IN THE HARDENED CONCRETE. KNOCKOUTS ARE REQUIRED IN PRECAST CONSTRUCTION. PRECAST WALLS SHALL HAVE A SUFFICIENT AMOUNT OF REINFORCEMENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

H. CARE SHALL BE TAKEN WHEN CONNECTING TO AN EXISTING CATCH BASIN TO KEEP OPENING AS MINIMAL AS POSSIBLE. IF POSSIBLE, SAW CUT OR USE ROTARY HAMMER FOR OPENING TO MINIMIZE DAMAGE TO CATCH BASIN. PIPE TO INTRUDE INTO CATCH BASIN 1 INCH ONLY AND PIPE MUST BE CUT PARALLEL TO CATCH BASIN. USE NONSHRINK GROUT AROUND PIPE TO SEAL BETWEEN PIPE AND CATCH BASIN.

I. DROP FLOW LINE 1/2 INCH WITHIN BLOCK OUT OF COMBINED CURB AND GUTTER WHILE KEEPING LIP OF GUTTER CONSISTENT WITH TOP OF CURB.

J. ALL GRATES SHALL BE CONSIDERED "BICYCLE SAFE".

CITY OF TIPP CITY

CHOOSE ONE ENGINEERING

TYPE 1 CATCH BASIN

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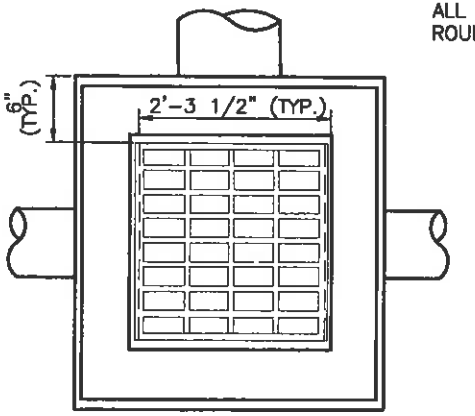
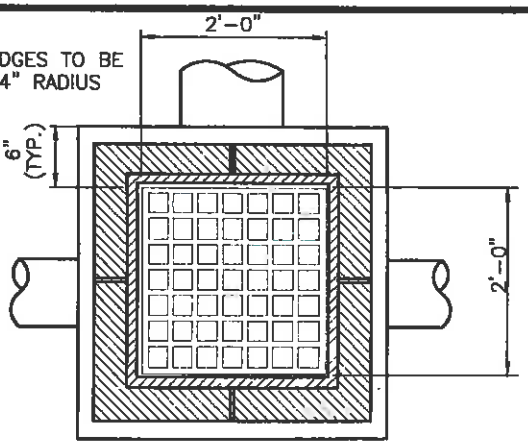
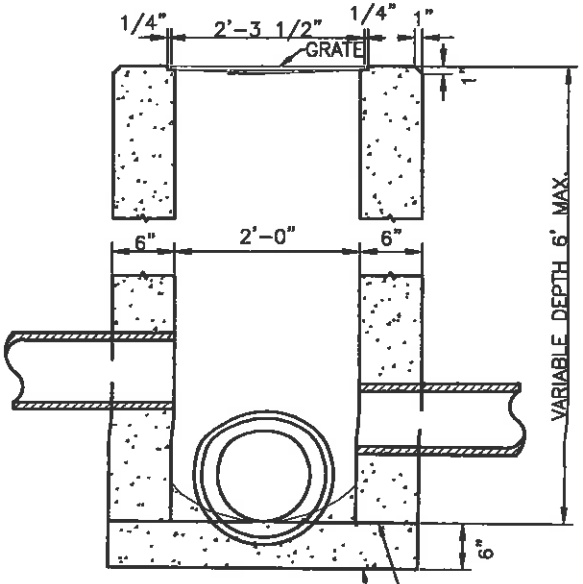


PLAN

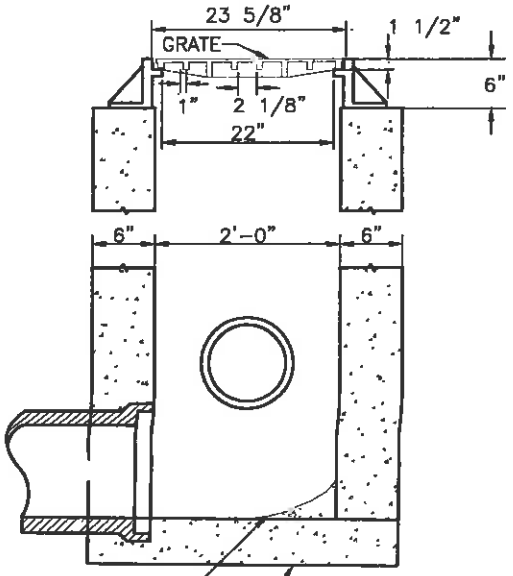
ALL GRATE EDGES TO BE ROUNDED 1/4" RADIUS



PLAN



NONPAVED AREAS



PAVED AREAS

PERMISSIBLE CONSTRUCTION JOINT

BOTTOM SLAB MAY BE CAST SEPARATELY AND THE OUTLET PIPE PLACED ON TOP OF IT WITH THE BOTTOM SHAPED TO DRAIN.

NOTES

A. AS OF JANUARY 1, 2003 THE FOLLOWING TEXT SHALL BE CAST INTO THE TOP OF THE GRATE:
"DUMP NO WASTE" AND "DRAINS TO WATERWAY"
TEXT SHALL BE PRINTED IN BOLD, CAPITAL LETTERS WITH A MINIMUM HEIGHT OF 1/2 INCH. "WATERWAY" MAY BE SUBSTITUTED WITH "STREAM", "RIVER", ETC. ACTUAL PLACEMENT AND LOGO MAY VARY PER MANUFACTURER.

B. LOCATION AND ELEVATIONS WHEN GIVEN ON THE PLANS IS TOP CENTER OF THE GRATE. WHEN SIDE OPENINGS ARE PROVIDED, ELEVATION SHALL BE THE FLOW LINE OF THE SIDE INLET.

C. GRATE FOR NONPAVED AREAS SHALL BE EAST JORDAN IRON WORKS 5110 TYPE M3 OR NEENAH CATALOG NO. R-4859-C OR EQUIVALENT.

D. GRATE ELEVATION TO BE PLACED 4 INCH TO 6 INCH BELOW NORMAL DITCH RETURNING TO NORMAL 10' EACH SIDE OF BASIN.

E. PRECAST CONSTRUCTION IS REQUIRED, UNLESS OTHERWISE APPROVED, AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13 WITH 6±2% AIR VOID CONTENT IN THE HARDENED CONCRETE. KNOCKOUTS SHALL BE PROVIDED IN PRECAST CONSTRUCTION. PRECAST WALLS SHALL HAVE A SUFFICIENT AMOUNT OF REINFORCEMENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

F. CATCH BASINS NOT PERMITTED IN PAVEMENT AREAS UNLESS USING A FRAME AND GRATE EQUIVALENT OF NEENAH CATALOG NO. R-3405 OR EAST JORDAN IRON WORKS NO. 5250.

G. FOR PIPES OVER 18" REFER TO ODOT CATCH BASIN 2-3 AND 2-4. FOR SIDE INLETS REFER TO ODOT CATCH BASIN 2-2-A.

H. CARE SHALL BE TAKEN WHEN CONNECTING TO AN EXISTING CATCH BASIN TO KEEP OPENING AS MINIMAL AS POSSIBLE. IF POSSIBLE, SAW CUT OR USE ROTARY HAMMER FOR OPENING TO MINIMIZE DAMAGE TO CATCH BASIN. PIPE TO INTRUDE INTO CATCH BASIN 1" ONLY AND PIPE MUST BE CUT PARALLEL TO CATCH BASIN. USE NONSHRINK GROUT AROUND PIPE TO SEAL BETWEEN PIPE AND CATCH BASIN.

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TYPE 2-2-B CATCH BASIN

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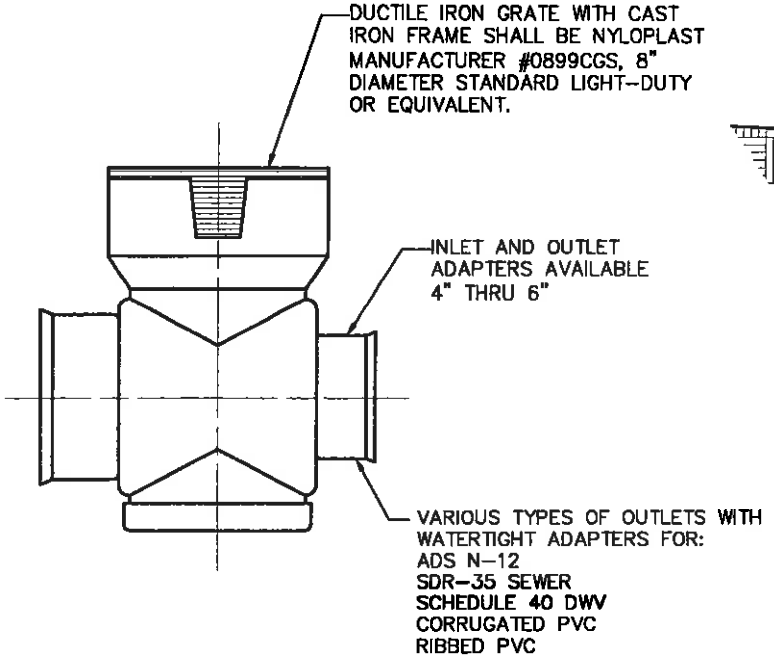
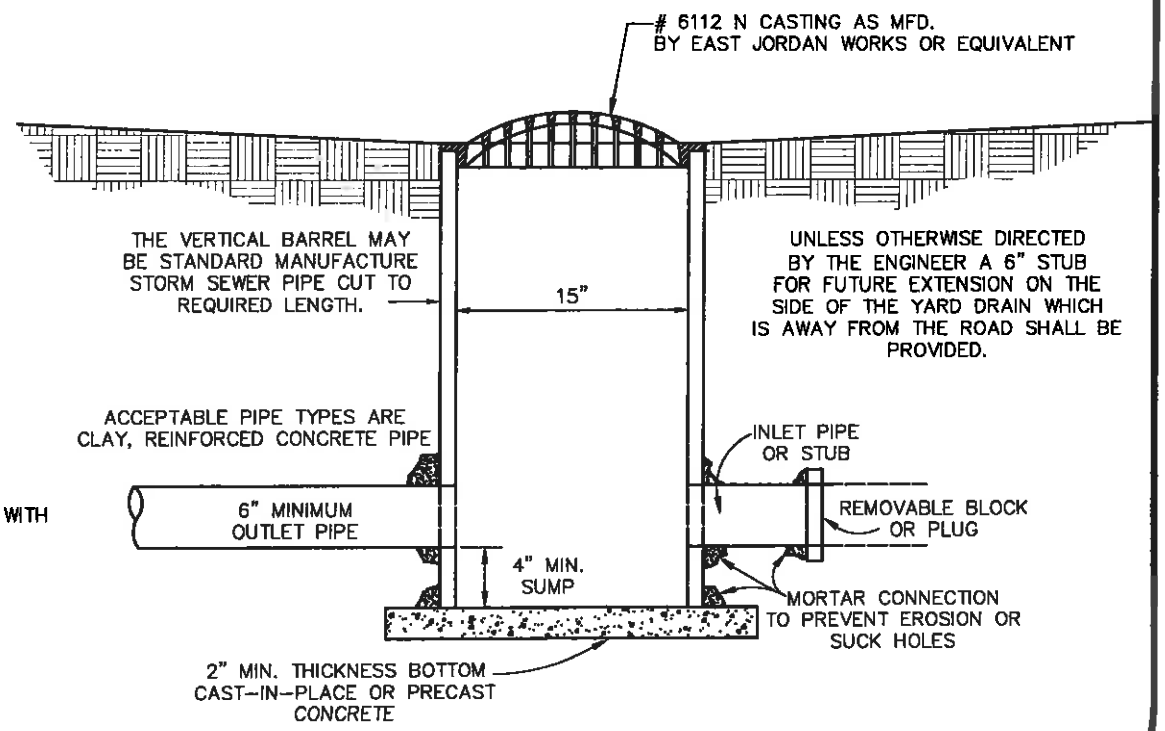


TYPE 2 YARD DRAIN

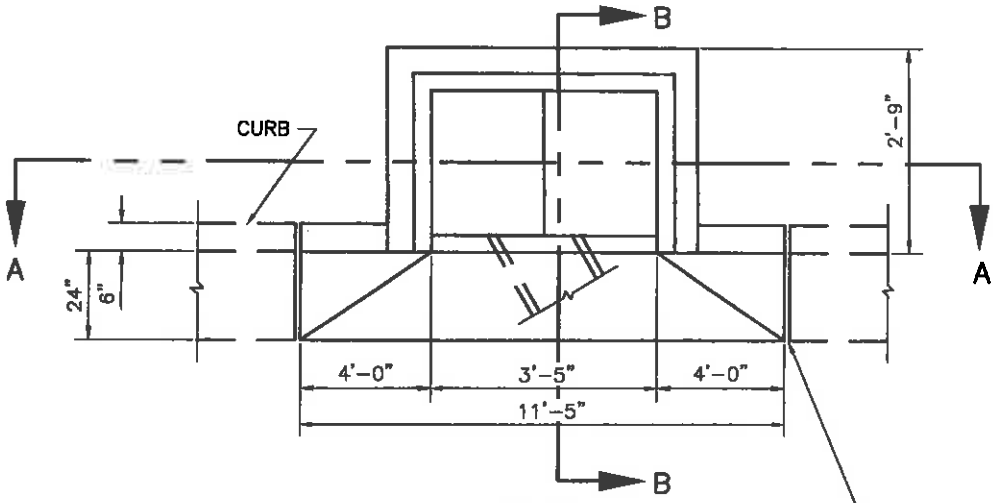
-STANDARD OR CUSTOM DRAIN BASIN FOR VARIABLE INLET HEIGHT SHALL BE NYLOPLAST MANUFACTURER #2808AG OR EQUAL.

-CONTRACTOR TO INSTALL PER MANUFACTURER'S RECOMMENDATIONS.



TYPE 3 YARD DRAIN

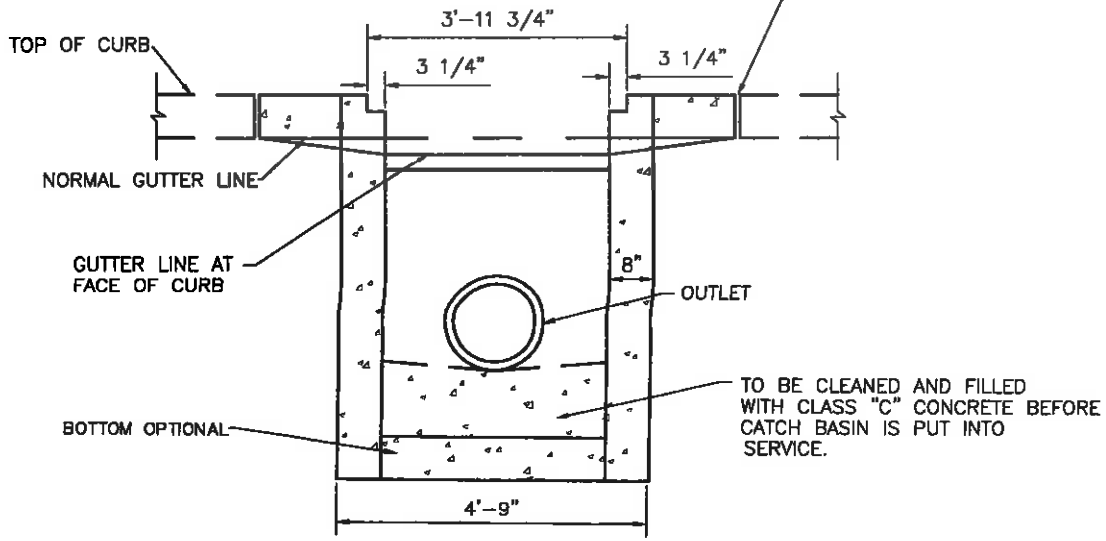
CITY OF TIPP CITY ONE ENGINEERING	YARD DRAIN	REVISIONS:	DATE APPROVED: MAR.2015 PAGE No. 600-3



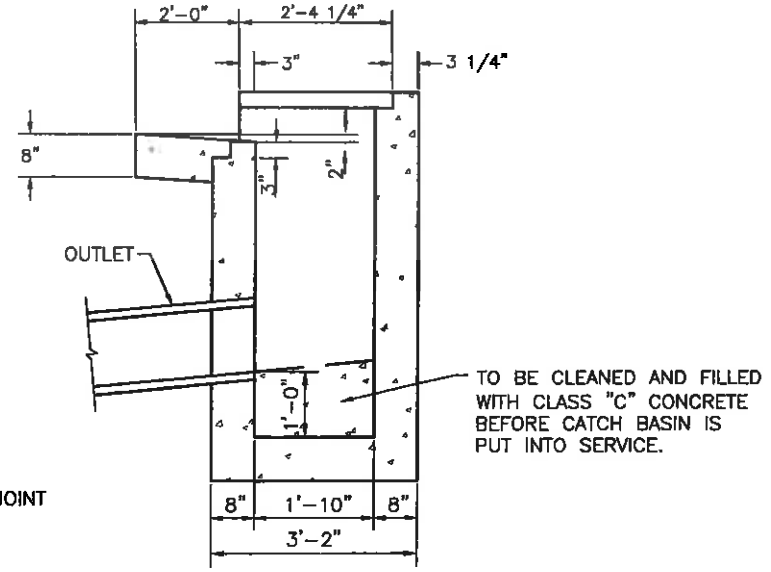
PLAN

(WITH FRAME AND LID REMOVED)

1/2" EXPANSION JOINT (TYP.)



SECTION A-A



SECTION B-B

NOTES:

A. CURBS ALONG APRON TO HAVE VERTICAL FACE AND BE MONOLITHIC WITH APRON.

B. FRAME AND LID SHALL BE NEENAH CATALOG No. R-3312-A OR EQUIVALENT.

C. CATCH BASIN MAY BE PRECAST UNIT OR POURED IN PLACE.

D. PRECAST UNITS SHALL HAVE MINIMUM WALL THICKNESS OF 5 INCH.

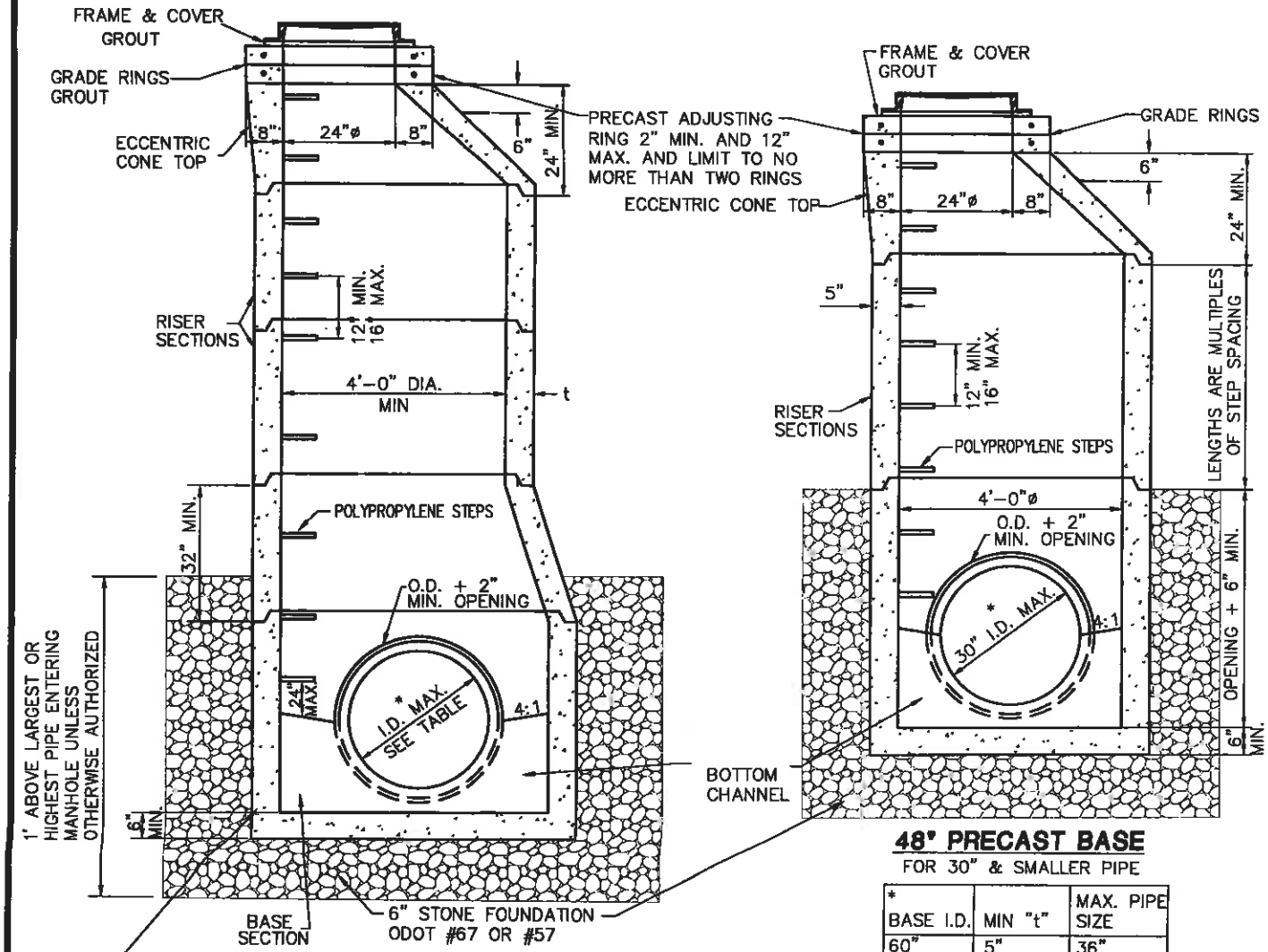
E. PRECAST UNITS SHALL BE DURA-CRETE CB-915-A OR AN APPROVED EQUAL.

F. ALL CATCH BASINS SHALL BE PLACED ON A 6 INCH APPROVED AGGREGATE BASE WITH PRECAST BOTTOM.

G. BOTTOM TO BE CONTOURED TO PROVIDE POSITIVE DRAINAGE. THE SLOPE TO BE DETERMINED BY THE ENGINEER.

H. THE FRONT EDGE OF CATCH BASIN LID FRAME TO BE FLUSH WITH THE EDGE OF CURB AND FLUSH WITH FACE OF BARRIER CURB.

CITY OF TIPP CITY CHANCE ONE ENGINEERING	# TYPE A CATCH BASIN "IN KIND" FOR REPAIR/MAINTENANCE ONLY AS DIRECTED BY CITY	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600-4



60" TO 96" PRECAST BASE

SEE TABLE FOR MAXIMUM PIPE SIZES

PRECAST OR POURED IN PLACE BASE SECTION WITH 6" GRANULAR BEDDING. USE OF BARREL BLOCKS IS CONTINGENT UPON CITY APPROVAL AND THEN ONLY IN SPECIAL CASES.

48" PRECAST BASE

FOR 30" & SMALLER PIPE

* BASE I.D.	MIN "t"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2	60"
96"	8"	60"

*DUE TO PIPE ORIENTATION, LARGER DIAMETER BASE THAN WHAT IS SPECIFIED TO ACCEPT PIPE MAY BE REQUIRED.

NOTES

A. STORM MANHOLE FRAME AND APPROVED VENTED LID SHALL BE EQUAL OF NEENAH NO. R-1767 OR EAST JORDON IRON WORKS NO. 1600 OR APPROVED EQUAL.

B. TOP AND TRANSITION (OR REDUCER) SECTIONS MAY BE EITHER ECCENTRIC CONE OR FLAT SLAB.

C. OPENINGS IN RISER SECTIONS FOR 18 INCH AND SMALLER INLET PIPES MAY BE PREFABRICATED OR CUT IN THE FIELD PROVIDED THE SIDES OF THE PIPE AT THE SPRING LINE DO NOT PROJECT INTO THE MANHOLE.

D. MATERIALS FOR BASES AND OTHER PRECAST SECTIONS, INCLUDING REINFORCEMENT SHALL COMPLY WITH ODOT REQUIREMENT OF 706.13 (ASTM C-478).

E. LOCATE THE CENTERLINE OF MANHOLE CONES OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

F. FOR PIPE SIZES LARGER THAN 60 INCHED REFER TO ODOT TYPE 4 TO 5 MANHOLE.

G. NO LATERALS MAY PROTRUDE INTO THE INTERNAL MANHOLE.

H. MAXIMUM SPACING SHALL BE 300 FEET.

I. WHEN CONNECTING TO AN EXISTING STORM MANHOLE CARE SHALL BE TAKEN TO KEEP OPENING AS MINIMAL AS POSSIBLE. IF POSSIBLE, SAW CUT OR USE ROTARY HAMMER FOR OPENING TO MINIMIZE DAMAGE TO STORM MANHOLE AND PIPE MUST BE CUT PARALLEL TO STORM MANHOLE. USE NONSHRINK GROUT AROUND PIPE TO SEAL BETWEEN PIPE AND STORM MANHOLE.

J. JOINTS BETWEEN SECTIONS TO BE EITHER MORTAR OR BITUMINOUS PIPE JOINT FILLER (ODOT 706.10)

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

TYPE 3 STORM MANHOLE

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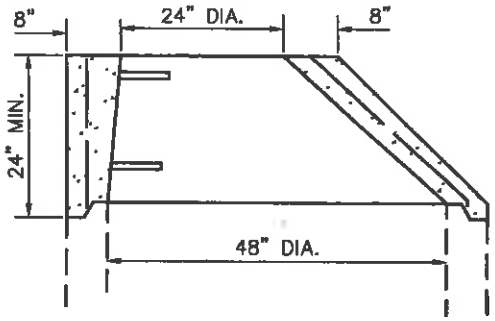
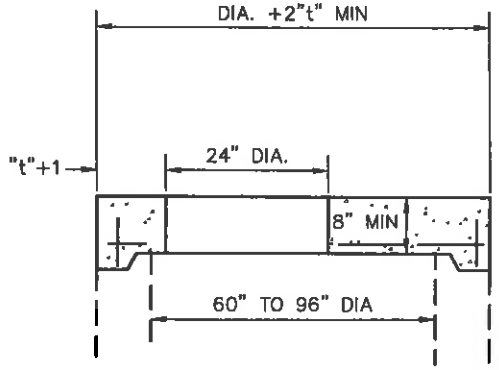
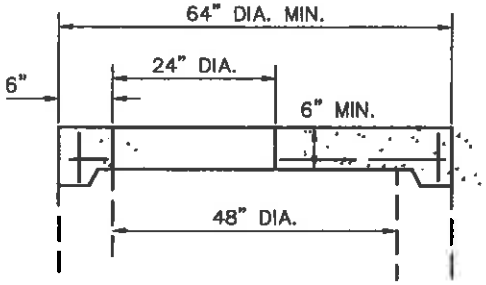


ECCENTRIC CONE TOP

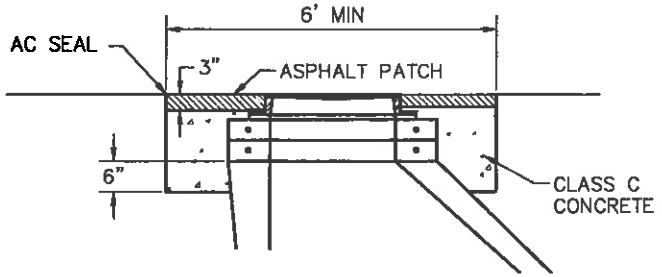


FLAT SLAB TOP

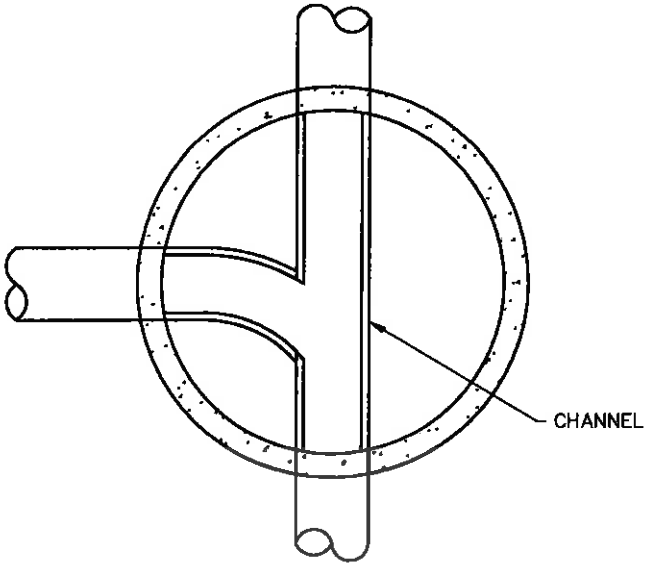
BASE I.D.	MIN "t"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2	60"
96"	8"	60"



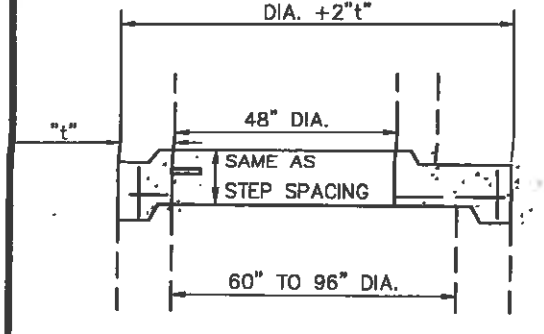
FLAT SLAB TOP



MANHOLE REPAIR CASTING CONSTRUCTION



SECTIONAL PLAN



FLAT SLAB TRANSITION

NOTES:

1. PRECAST CONCRETE ADJUSTING RINGS – ENCASE WITH CONCRETE 6 INCHES DOWN FROM BARREL TOP AND UP TO WITHIN 3 INCHES OF SURFACE AND EXTENSIONS.
2. FOR REPAIRS SET MANHOLE, PRECAST CONCRETE ADJUSTING RINGS AND CASTING THEN PAVE OVER MANHOLE. THEN DIG OUT, ENCASE COLLARS AND CASTING AS PER DETAIL WITH CONCRETE TO WITHIN 3 INCHES OF SURFACE. THE MANHOLE WILL HAVE A PATCHED RADIUS OF (3 INCH) ASPHALT.

NOTE

ALL INVERTS TO BE CHANNELED FOR OPTIMUM FLOW.

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

TYPE 3 STORM MANHOLE DETAILS

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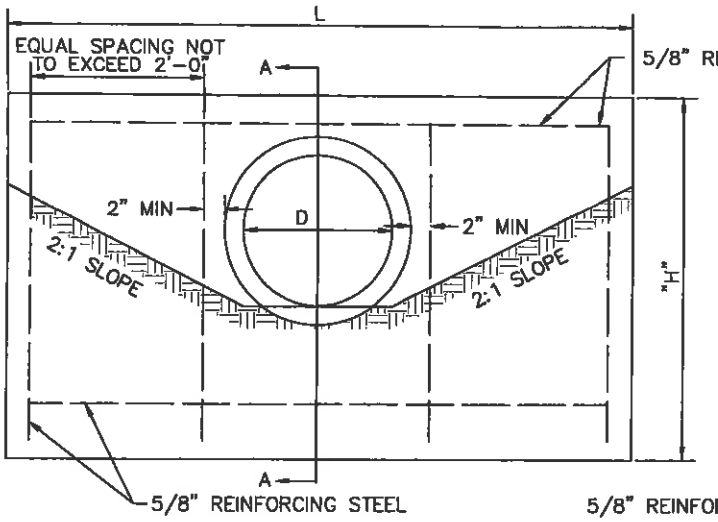
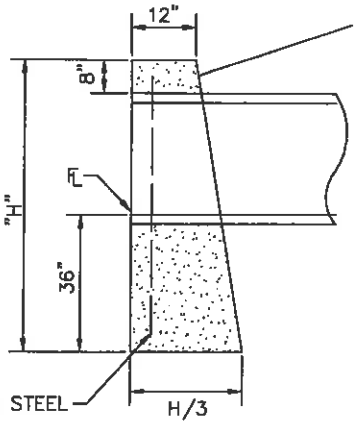


ELEVATION



SECTION A-A

NOTES

A. THESE FULL HEIGHT HEADWALLS ARE FOR NONSKEWED CULVERTS HAVING A DIAMETER OR RISE OF 36 INCHES OR LESS.

B. CONCRETE SHALL BE ODOT CLASS C. REINFORCED STEEL BAR SHALL BE 5/8 INCH ROUND.

C. DIMENSIONS AND QUANTITIES ARE SHOWN FOR CIRCULAR SECTIONS ONLY. IT WILL BE NECESSARY TO DETERMINE DIMENSIONS FOR THE HW-1 HEADWALL REQUIRED FOR REINFORCED ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL PIPE ARCHES IN ACCORDANCE WITH THE EQUATIONS LISTED ON THIS DRAWING.

D. CHAMFER ALL EXPOSED CORNERS 3/4 INCH.

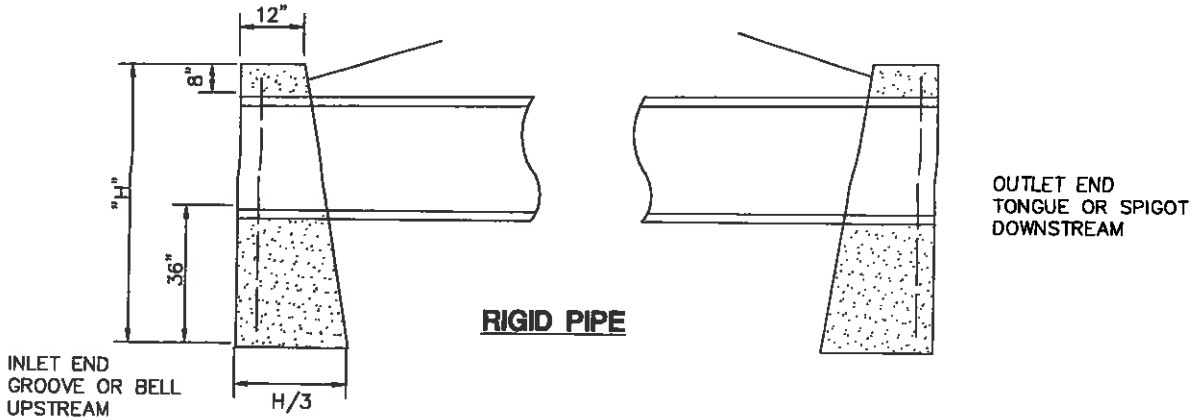
E. WHERE THE SOIL BORINGS INDICATE A BEARING CAPACITY O LESS THAN 2600 LBS. PER SQUARE FOOT, IT WILL BE NECESSARY TO INCREASE THE WIDTH OF THE BASE.

F. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 2 INCH.

G. FOR PIPES HAVING A DIAMETER OR RISE OVER 36 INCHES, REFERENCE ODOT HW-3 HEADWALLS FOR FULL HEIGHT HEADWALL.

H. FOR SKEWED CULVERTS HAVING A DIAMETER OR RISE OF 36 INCHES OR LESS, REFERENCE ODOT HW-2 HEADWALLS.

I. HEADWALLS MAY BE PRECAST CONCRETE CONSTRUCTED TO THE ABOVE REQUIREMENTS. GROUT AROUND PIPE AFTER INSTALLATION.



RIGID PIPE

DIMENSIONS			QUANTITIES ONE HEADWALL	
DIAMETER	HEIGHT	LENGTH	CONCRETE C.Y.	REINFORCING STEEL LBS.
15"	5'-2"	7'-0"	1.7	41
18"	5'-5"	8'-4"	2.2	57
21"	5'-8"	9'-8"	2.8	62
24"	5'-11"	11'-0"	3.3	69
30"	6'-5"	13'-8"	4.7	92
36"	7'-0"	16'-4"	6.5	105

L CIRCULAR SECTIONS = 5D + 4T
L ELLIPTICAL OR PIPE-ARCH = 4R + 4T + S
H CIRCULAR SECTIONS = D + T + 44"
H ELLIPTICAL OR PIPE-ARCH = R + T + 44"
D = DIAMETER OF PIPE R = RISE OF PIPE
S = SPAN OF PIPE T = THICKNESS OF BARREL
L = LENGTH OF HEADWALL H = HEIGHT OF HEADWALL

CITY OF TIPP CITY

CANNON ONE ENGINEERING

FULL-HEIGHT HEADWALL

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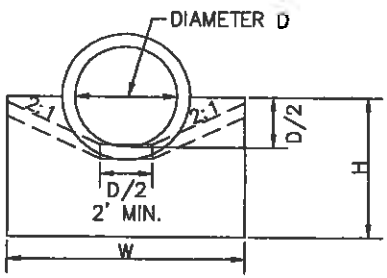
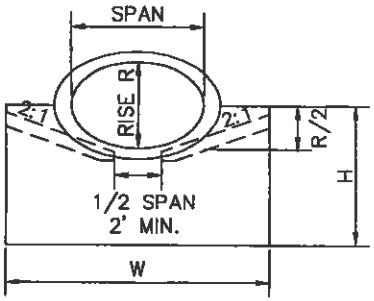
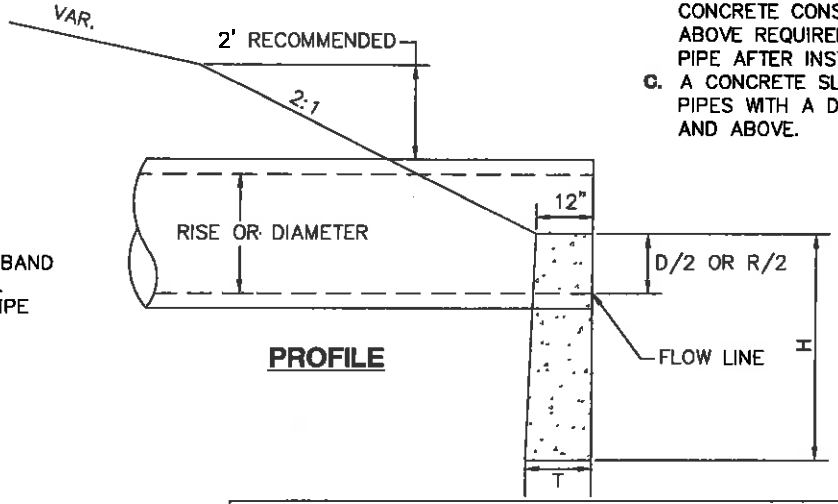


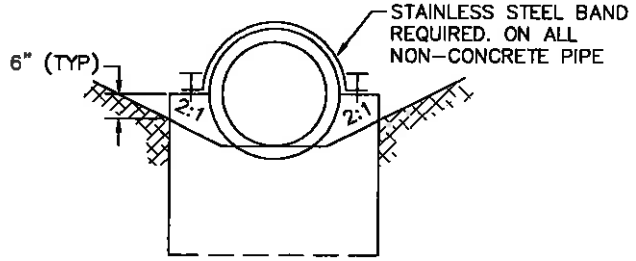
CIRCULAR



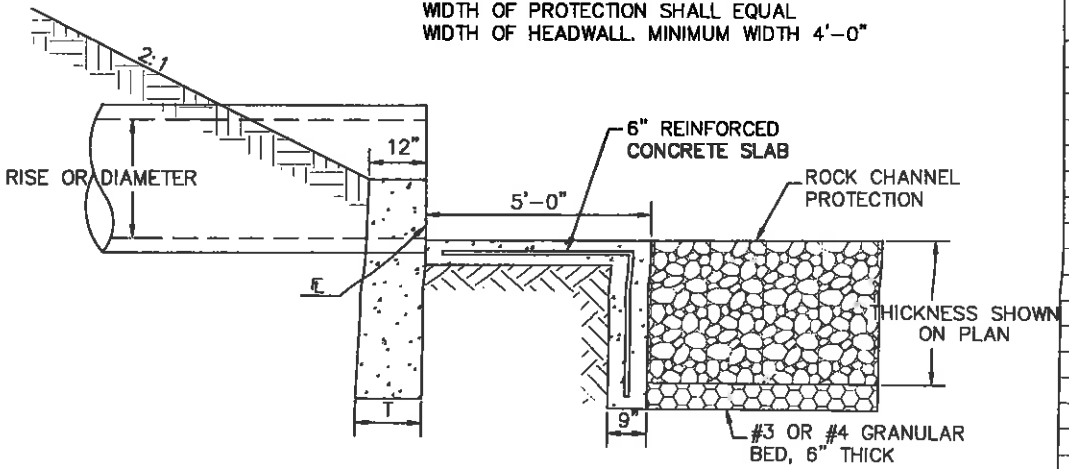
ELLIPTICAL



PROFILE



WIDTH OF PROTECTION SHALL EQUAL
WIDTH OF HEADWALL. MINIMUM WIDTH 4'-0"



OUTLET CHANNEL PROTECTION DETAIL

(CUTOFF WALL DEPTH 2'-6" MINIMUM IS VARIABLE TO MATCH REQUIRED THICKNESS OF ROCK.)

NOTES

A. CONCRETE FOR HEADWALLS SHALL BE ODOT CLASS C. CONCRETE QUANTITIES ARE BASED ON HEADWALLS ONLY.
B. HEADWALLS MAY BE PRECAST CONCRETE CONSTRUCTED TO THE ABOVE REQUIREMENTS. GROUT AROUND PIPE AFTER INSTALLATION.
C. A CONCRETE SLAB IS REQUIRED FOR PIPES WITH A DIAMETER OF 18 INCH AND ABOVE.

HEADWALL FOR CONCRETE PIPE

CIRCULAR				CONC.	ELLIPTICAL					CONC.
D	W	H	T	C.Y.	SPAN	RISE	W	H	T	C.Y.
12"	2'-0"	3'-0"	12"	.20	23"	14"	3'-0"	3'-2"	12"	.29
15"	2'-6"	3'-2"	12"	.25	30"	19"	3'-7"	3'-4"	12"	.35
18"	3'-0"	3'-3"	12"	.31	34"	22"	3'-11"	3'-5"	12"	.38
21"	3'-6"	3'-4"	12"	.37	38"	24"	4'-6"	3'-6"	12"	.44
24"	4'-0"	3'-6"	12"	.43	42"	27"	4'-8"	3'-7"	12"	.45
27"	4'-6"	3'-8"	12"	.49	45"	29"	5'-2"	3'-8"	12"	.49
30"	5'-0"	3'-9"	12"	.56	49"	32"	5'-5"	3'-10"	12"	.52
33"	5'-6"	3'-10"	12"	.62	53"	34"	5'-11"	4'-0"	14"	.66
36"	6'-0"	4'-0"	12"	.69	60"	38"	6'-10"	4'-2"	14"	.82
39"	6'-6"	4'-2"	12"	.77	68"	43"	8'-0"	4'-4"	16"	1.01
42"	7'-0"	4'-3"	12"	.84	76"	48"	9'-2"	5'-0"	16"	1.34
48"	8'-0"	4'-6"	14"	1.09	83"	53"	10'-4"	5'-2"	18"	1.65
54"	9'-3"	4'-9"	14"	1.32	91"	58"	11'-6"	5'-5"	18"	1.97
60"	10'-6"	5'-6"	16"	1.93	98"	63"	12'-7"	5'-7"	20"	2.38
66"	11'-9"	5'-9"	18"	2.42	106"	68"	13'-9"	5'-10"	20"	2.69
72"	13'-0"	6'-0"	18"	2.77	113"	72"	14'-9"	6'-0"	22"	3.14
78"	14'-3"	6'-3"	20"	3.37	121"	77"	15'-11"	6'-3"	22"	3.49
84"	15'-6"	6'-6"	22"	4.05	128"	82"	17'-0"	6'-5"	24"	4.04

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

HALF-HEIGHT HEADWALL

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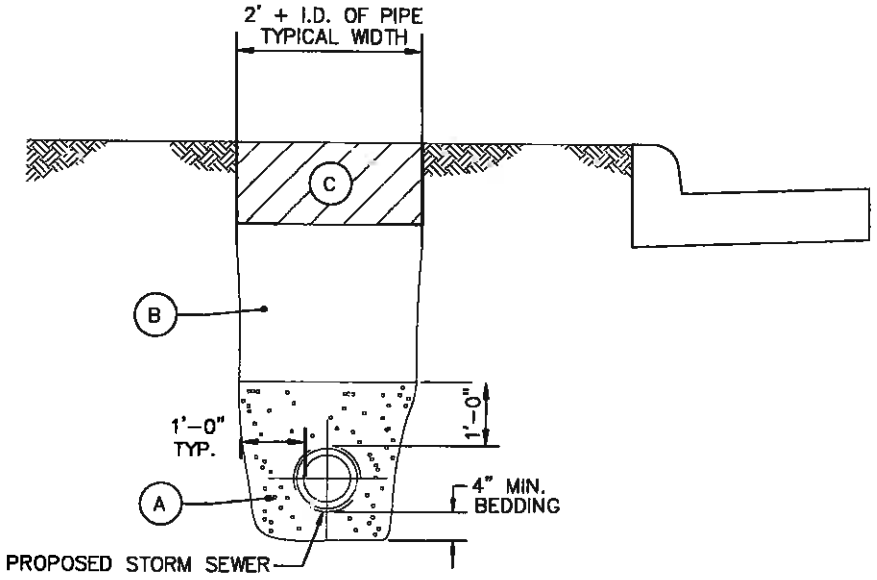
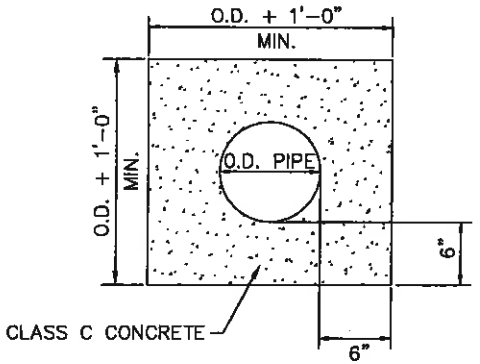


STORM SEWER TRENCH DETAIL

SHOWN AS OFF PAVEMENT APPLICATION



CONCRETE ENCASEMENT DETAIL

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, ODOT 603 TYPE 3 (#57 OR #8'S), OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES OUTSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, *STONE AREAS OR WALKS CAN BE COMPACTED WITH EXISTING* NATIVE MATERIAL IN 12 INCH MAXIMUM LIFTS OR AS APPROVED BY THE CITY. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4 INCH DIAMETER.

ALL TRENCHES INSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6 INCH MAXIMUM LIFTS.

A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAY BE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE CITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A *MINIMUM OF 6 INCH OF TOPSOIL OVER THE COMPACTED* MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN-PAVEMENT AREAS SHALL FOLLOW TYPICAL PAVEMENT RESTORATION DETAILS SHOWN ON PAGE 300-15.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	STORM SEWER TRENCH DETAILS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600-9

NOTES

A. NO WORK SHALL BE APPROVED OR ACCEPTED BY THE CITY UNLESS 2 WORKING DAYS NOTICE OF COMMENCING WORK IS GIVEN TO THE CITY.

B. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR THE DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE CITY.

C. ALL STORM SEWER CONSTRUCTION SHALL ADHERE TO ODOT SPECIFICATIONS LATEST REVISION OR WITH THE CITY STORM SEWER SPECIFICATIONS, WHICHEVER IS APPLICABLE AND MORE RESTRICTIVE.

D. MASTIC MATERIAL IS REQUIRED ON ALL NON O-RING STORM SEWER AND MANHOLES, UNLESS OTHERWISE APPROVED.

E. WHEN A CASTING IS REMOVED IT REMAINS CITY PROPERTY AND TO BE DELIVERED TO THE CITY SERVICE CENTER, UNLESS OTHERWISE APPROVED.

F. ANY DETAILS OR NOTES NOT DIRECTLY ADDRESSED IN THESE ENGINEERING STANDARDS SHALL BE COORDINATED WITH THE CITY ENGINEERING DEPARTMENT.

G. ALL STORM SEWER SHALL BE INSTALLED USING A PIPE LASER, INSIDE THE PIPE IF POSSIBLE, FOR GRADE AND ALIGNMENT.

UTILITY STAKING

A. OFFSET AND GRADE AT EACH MANHOLE, CATCH BASIN, AND OTHER STRUCTURES. OFFSET AND GRADE 50 FEET AND 100 FEET OUT FROM EACH MANHOLE UNLESS OTHERWISE APPROVED.

PIPE

A. ALL STORM SEWER PIPE SHALL HAVE A MINIMUM DIAMETER OF 12 INCH, UNLESS OTHERWISE APPROVED.

B. TYPES OF PIPE PERMITTED

OUTSIDE THE RIGHT-OF-WAY

	ODOT MATERIALS NUMBER
REINFORCED CONCRETE PIPE	706.02
REINFORCED CONCRETE ELLIPTICAL PIPE	706.04

IF MORE THAN 3 FEET OF COVER OVER PIPE TYPE MAYBE;

CORRUGATED POLYETHYLENE SMOOTH-LINED PIPE	707.33
POLYVINYL CHLORIDE PLASTIC PIPE (NON-PERFORATED)	707.41
POLYVINYL CHLORIDE CORRUGATED SMOOTH-INTERIOR PIPE	707.42
POLYVINYL CHLORIDE PROFILE WALL PIPE	707.43
POLYVINYL CHLORIDE SOLID WALL PIPE	707.45

(NO CHANGES IN MATERIALS PERMITTED IN NEW CONSTRUCTION UNLESS AT A CATCH BASIN ON MANHOLE.)

WITHIN THE RIGHT-OF-WAY

	ODOT MATERIALS NUMBER
REINFORCED CONCRETE PIPE *	706.02
REINFORCED CONCRETE ELLIPTICAL PIPE *	706.04

* MINIMUM OF CLASS IV – WALL B UNLESS OTHERWISE APPROVED

EXISTING TILE HOOKUPS

A. THE DRAINAGE TILE CURRENTLY CONNECTED TO THE EXISTING STORM SEWER SHALL BE CONNECTED TO THE PROPOSED STORM SEWER. ANY DRAINAGE TILE DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. ANYTHING REMOVED, REPLACED, AND/OR CONNECTED TO THE STORM SEWER SHALL BE NOTED ON THE AS-BUILT DRAWINGS AND SHALL BE INSPECTED BY THE INSPECTOR BEFORE THEY ARE COVERED.

B. ALL FIELD OR STORM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS OR PLUGGED AS APPROVED AND DIRECTED BY THE CITY.

STORM LATERAL STUB OUT

NOTE: IT IS OK TO USE ADS N-12 SMOOTH LINED PIPE OR EQUAL FOR STORM LATERALS TO PRIVATE PROPERTY. (WITHIN STREET RIGHT-OF-WAY UP TO THE PROPERTY/RIGHT-OF-WAY LINE)

CITY OF TIPP CITY CHOOSE ONE ENGINEERING	# MISCELLANEOUS STORM NOTES	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600-10

NOTES

A. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROVIDED FOR ALL CONSTRUCTION PROJECTS HAVING SIGNIFICANT GRADING. THE CONTROLS ARE PROVIDED DURING CONSTRUCTION TO PREVENT SOIL ERODED FROM THE CONSTRUCTION AREA FROM ENTERING ADJACENT WATERWAYS AND PROPERTIES.

B. CONSTRUCTION ITEMS INCLUDE SEDIMENT BASINS, SEDIMENT DAMS, DIVERSION DIKES AND/OR DITCHES AND STRAW BALES OR OTHER FILTER DIKES SHOWN ON ODOT STANDARD DRAWING MC-11. OTHER MISCELLANEOUS EROSION CONTROL MEASURES INCLUDE REPAIR SEEDING AND MULCHING, COMMERCIAL FERTILIZER, WATER AND MOWING AND ROCK CHANNEL PROTECTION, COVERED IN ODOT SPECIFICATION ITEMS 659 AND 601.

C. THE SIZE OF THE ENTIRE DRAINAGE AREA CONTRIBUTING FLOW IS USED TO DETERMINE THE MOST EFFECTIVE EROSION CONTROL METHOD. IN MANY CASES, THE MAJOR PORTION OF THE CONTRIBUTING AREA WILL BE BEYOND THE PROJECT LIMITS, AND FOR THOSE CASES IT WILL BE NECESSARY TO CONTROL THE FLOW FROM OUTSIDE BEFORE IT REACHES THE AREA DISTURBED BY PROJECT CONSTRUCTION. FLOW FROM THE AREA DISTURBED BY CONSTRUCTION SHALL BE TREATED PRIOR TO COMBINING IT WITH OFF-PAVEMENT DRAINAGE.

D. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROVIDED FOR ALL SUBDIVISIONS AND INDIVIDUAL SITES UNLESS OTHERWISE APPROVED. THE CONTROL MEASURES ARE TO BE PROVIDED DURING CONSTRUCTION TO PREVENT EROSION FROM ENTERING ADJACENT WATERWAYS AND PROPERTIES.

E. THERE SHALL BE ONLY ONE CONSTRUCTION ENTRANCE OFF THE SITE, ENTRANCE TO BE CONSTRUCTED OF 8" OF #2 STONE, 75 FEET LONG (OR AS DETAILED ON THE SWPPP) BY 20 FEET WIDE. CONTRACTOR TO KEEP MUD OFF EXISTING STREETS, NO EQUIPMENT TO BE PARKED ON EXISTING STREETS. MORE THAN ONE ENTRANCE MUST BE APPROVED BY THE CITY.

PLAN SUBMITTAL

A. ALL SWPPP PLANS SHALL INCLUDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES AND SHALL BE SUBMITTED TO THE CITY FOR APPROVAL PRIOR TO COMMENCEMENT OF ANY WORK UNLESS OTHERWISE APPROVED. ALL PROJECTS WHICH DISTURB 1 ACRES OR MORE MUST HAVE OEPA EROSION CONTROL APPROVALS.

B. PLANS MUST MEET THE MOST RECENT REGULATIONS OF THE OEPA.

C. THE CITY IS TO REVIEW AND APPROVE THE SWPPP PRIOR TO THE START OF THE PROJECT.

CONSTRUCTION

A. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSPECTED/RECORDED AND MAINTAINED BY THE OWNER AND/OR HIS/HER REPRESENTATIVE, PER THE REGULATIONS OF THE NOI AND SWPPP.

B. COPIES OF ALL INSPECTIONS AND THE CURRENT SWPPP MUST BE KEPT ON SITE AND MADE AVAILABLE IF REQUESTED.

STORM WATER PERMITS

A. ON ALL PROJECTS WHICH DISTURB AT LEAST 1.0 ACRE OF SOIL. THE 1.0 REQUIREMENT PERTAINS TO THE TOTAL ACREAGE OF DISTURBED AREA, BE IT SINGLE OR MULTIPLE PARCELS. IF ON MULTIPLE PARCLES, EACH PROPERTY OWNER MUST OBTAIN THEIR OWN PERMIT. A NPDES AND/OR NOI PERMIT IS REQUIRED FROM OEPA AND A COPY OF THE PERMIT MUST BE ON FILE AT THE CITY BEFORE CONSTRUCTION BEGINS.

B. EROSION CONTROL SUBMITTALS SHALL BE AS PER THE CURRENT STORM WATER MANAGEMENT ORDINANCE.

CONTROL MEASURES

A. DISTURB ONLY THE AREAS NEEDED FOR CONSTRUCTION.

B. REMOVE ONLY THOSE TREES, SHRUBS, AND GRASSES THAT MUST BE REMOVED FOR CONSTRUCTION; PROTECT THE REST TO PRESERVE THEIR ESTHETIC AND EROSION-CONTROL VALUES.

C. INSTALL SEDIMENT BASINS AND DIVERSION DIKES BEFORE DISTURBING THE LAND THAT DRAINS INTO THEM.

D. INSTALL EROSION AND SEDIMENT CONTROL PRACTICES AS INDICATED IN THE PLAN. THE PRACTICES ARE TO BE MAINTAINED IN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND UNTIL THE DRAINAGE AREAS HAVE BEEN PERMANENTLY STABILIZED.

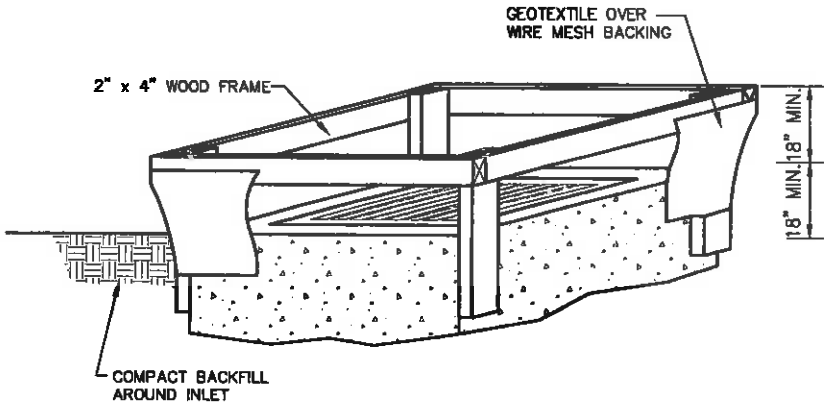
E. TEMPORARILY STABILIZE EACH SEGMENT, GRADED OR OTHERWISE DISTURBED LAND, INCLUDING THE SEDIMENT-CONTROL DEVICES NOT OTHERWISE STABILIZED, BY SEEDING AND MULCHING OR BY MULCHING ALONE. AS CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE EACH SEGMENT WITH PERENNIAL VEGETATION AND STRUCTURAL MEASURES.

F. LEVEL DIVERSION DIKES, SEDIMENT BASINS, AND SILT TRAPS AFTER AREAS THAT DRAIN INTO THEM ARE STABILIZED. ESTABLISH PERMANENT VEGETATION ON THESE AREAS. SEDIMENT BASINS THAT ARE TO BE RETAINED FOR STORM WATER DETENTION MAY BE SEEDED TO PERMANENT VEGETATION AFTER THEY ARE BUILT.

G. DISCHARGE WATER FROM OUTLET STRUCTURES AT NON-EROSIVE VELOCITIES.

H. ANY DEVIATIONS FROM THE SWPPP MUST BE APPROVED BY THE CITY.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	# EROSION CONTROL NOTES	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600-11



INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS

A. INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE BEGINS OR BEFORE THE STORM DRAIN BECOMES OPERATIONAL.

B. THE EARTH AROUND THE INLET SHALL BE EXCAVATED COMPLETELY TO A DEPTH A LEAST 18 INCHES..

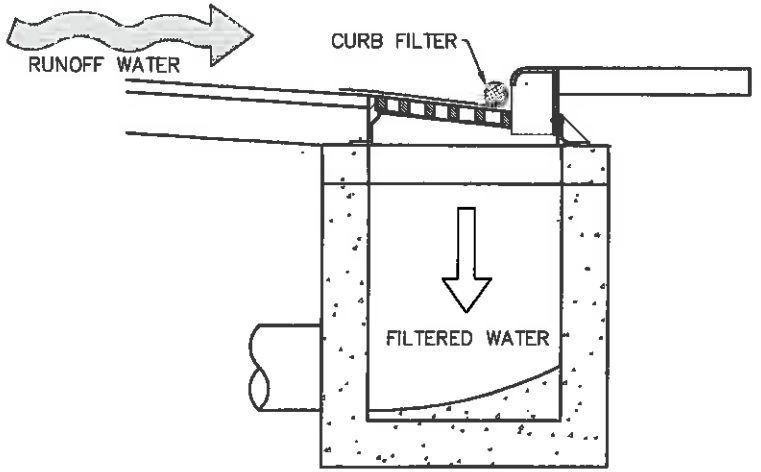
C. THE WOODEN FRAME SHALL BE CONSTRUCTED OF 2 INCH BY 4 INCH CONSTRUCTION GRADE LUMBER. THE 2 FOOT BY 4 FOOT POST SHALL BE DRIVEN 1 FOOT INTO THE GROUND AT FOUR CORNERS OF THE INLET AND AND THE TOP PORTION OF 2 INCH BY 4 INCH FRAME ASSEMBLED USING THE OVERLAP JOINT SHOWN. THE TOP OF THE FRAME SHALL BE AT LEAST 6 INCHES BELOW ADJACENT ROAD, IF PONDED WATER WOULD POSE A SAFETY HAZARD TO TRAFFIC.

D. WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.

E. *GEOTEXTILE SHALL HAVE AN EQUIVALENT OPENING SIZE OF 20–40 SIEVE AND BE* RESISTANT TO SUNLIGHT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY. IT SHALL EXTEND FROM THE TOP OF THE FRAME TO 18 INCHES BELOW THE INLET NOTCH ELEVATION. THE GEOTEXTILE SHALL OVERLAY ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.

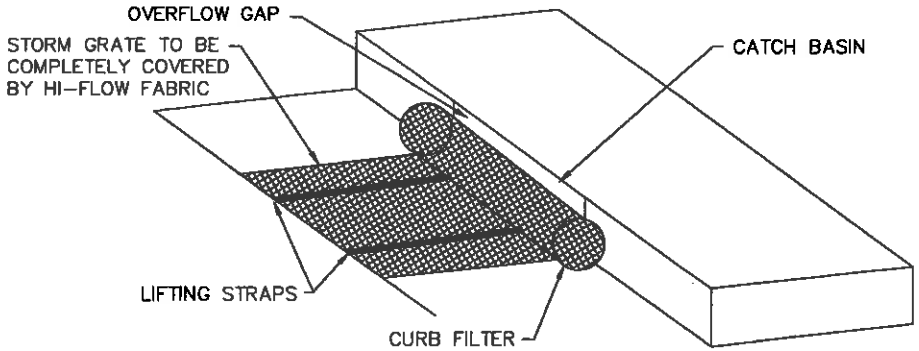
F. BACKFILL SHALL BE PLACED AROUND THE INLET IN COMPACTED 6 INCH LAYERS UNTIL THE EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.

G. A COMPACTED EARTH DIKE OR A CHECK DAM SHALL BE CONSTRUCTED IN THE DITCH LINE BELOW THE INLET IF THE INLET IS NOT IN A DEPRESSION, AND IF RUNOFF BY PASSING THE INLET WILL NOT FLOW TO A SETTING POND, THE TOP OF EARTH DIKES SHALL BE AT LEAST 6 INCHES HIGHER THAN THE TOP OF THE FRAME.



CURB INLET SEDIMENT FILTER

(AS REQUIRED BY THE CITY)



CURB INLET SEDIMENT FILTER NOTES

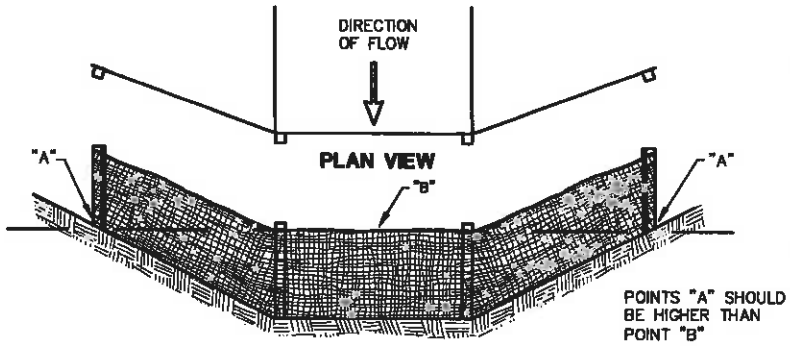
A. DANDY CURB BAG, SEDIGUARDS, OR EQUIVALENT MAY BE USED.

B. REMOVE SEDIMENT FROM CURB INLET PROTECTION BEFORE IT HINDERS THE FILTERING CAPACITY.

– DANDY CURB BAG: LIFT GRATE AND REMOVE DANDY BAG, CLEAN ACCUMULATED SEDIMENT AND REPLACE BAG AS REQUIRED BY MANUFACTURER.
– SEDIGUARD: CLEAN SEDIGUARD ONCE IT IS DRY WITH A STIFF BROOM AFTER EVERY RAIN.

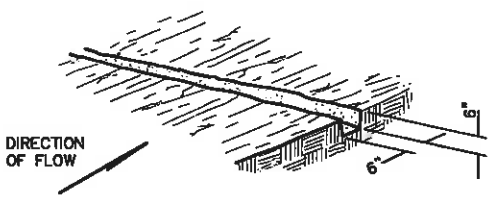
C. INLET PROTECTION SHOULD NEVER INTERFERE WITH SAFETY OF ACTIVE TRAFFIC.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	TEMPORARY EROSION CONTROL SAMPLES	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600–12



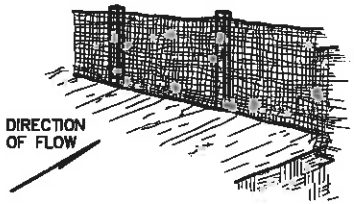
ELEVATION VIEW

PLACEMENT AND CONSTRUCTION OF DITCH CHECK FILTER FABRIC FENCE



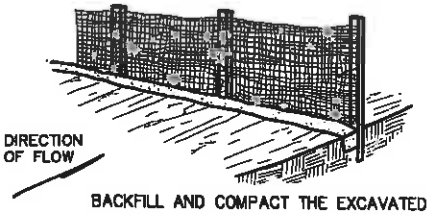
EXCAVATE A 6"X6" TRENCH ALONG THE PROPOSED FENCE LINE.

STEP 1



PLACE FABRIC AND SUPPORT STAKES AND EXTEND FABRIC INTO THE TRENCH.

STEP 2



BACKFILL AND COMPACT THE EXCAVATED SOIL.

STEP 3

PLACEMENT AND CONSTRUCTION OF PERIMETER FILTER FABRIC FENCE

CONSTRUCTION OF A FILTER BARRIER (SILT FENCE)

A. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.

B. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.

C. TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.

D. WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.

E. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FEET (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.

F. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

G. THE SILT FENCE SHALL BE PLACED IN A TRENCH CUT A MINIMUM OF 6 INCHES DEEP. THE TRENCH SHALL BE CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICE WHICH WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.

H. THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE AND SO THAT 8 INCHES OF CLOTH IS BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6 INCH DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED.

I. SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.

J. MAINTENANCE – SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. ALL THE GAPS AND TEARS IN THE FENCE MUST BE ELIMINATED AND REPAIRED. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: 1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, 2) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR 3) OTHER PRACTICES SHALL BE INSTALLED.

CRITERIA FOR SILT FENCE MATERIAL

A. FENCE POSTS – THE LENGTH SHALL BE A MINIMUM OF 32 INCHES LONG. WOOD POSTS WILL BE 2"x2" HARDWOOD OF SOUND QUALITY. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10 FEET.

B. SILT FENCE FABRIC SHALL BE ODOT TYPE C GEOTEXTILE FABRIC OR AS DESCRIBED BY THE CHART BELOW:

FABRIC PROPERTIES	
MINIMUM TENSILE STRENGTH	120 LBS.
MAXIMUM ELONGATION AT 60 LBS	50%
MINIMUM PUNCTURE STRENGTH	50 LBS.
MINIMUM TEAR STRENGTH	40 LBS.
MINIMUM BURST STRENGTH	200 PSI
APPARENT OPENING SIZE	$\leq$ 0.84mm
MINIMUM PERMITTIVITY	$1X10^{-2}$ sec.$^{-1}$
ULTRAVIOLET EXPOSURE STRENGTH RETENTION	70%

CITY OF TIPP CITY

CHANGE ONE ENGINEERING

TEMPORARY EROSION CONTROL SAMPLES

REVISIONS:

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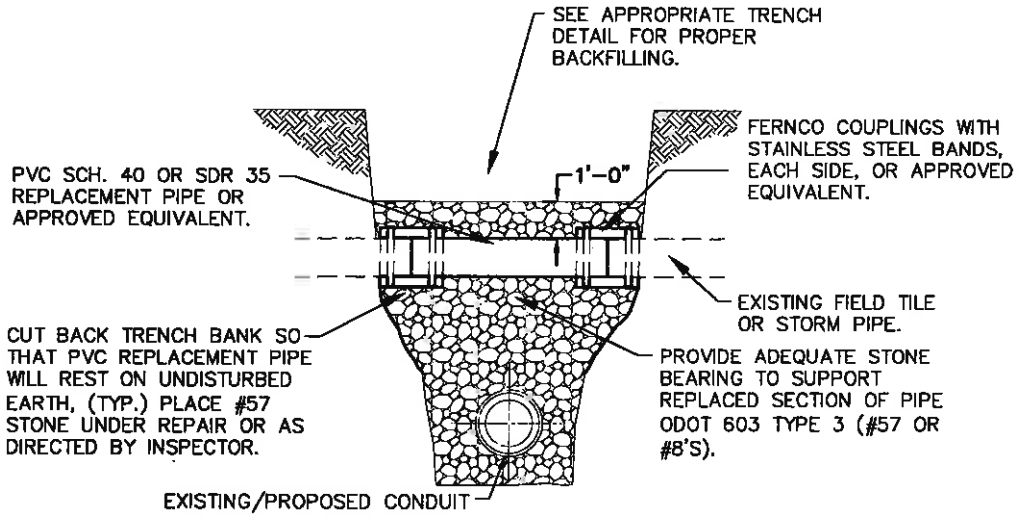
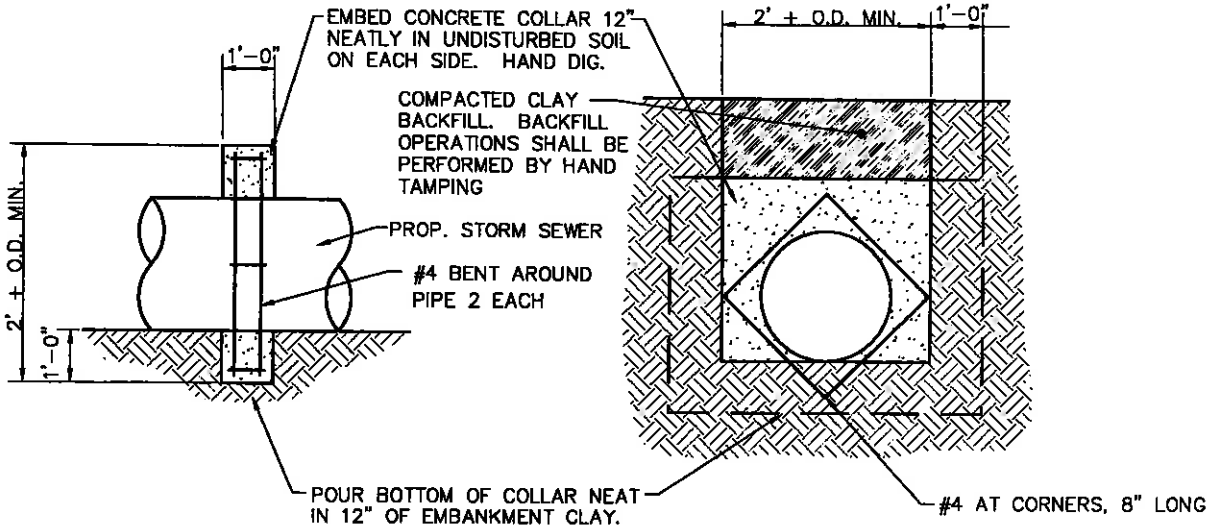


REPAIR OF EXISTING FIELD TILE OR STORM PIPE DETAIL

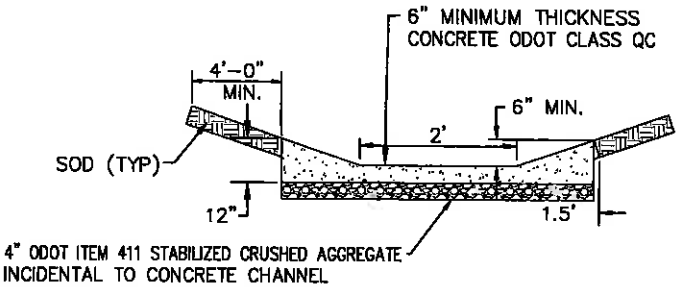
NOTES

CONCRETE REPAIRS OR PATCHES ARE UNACCEPTABLE.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	REPAIR OF EXISTING FIELD TILE OR STORM PIPE DETAIL	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600-14



SEEP COLLAR



NOTES

A. MINIMUM CHANNEL GRADE SHALL BE 0.50%. ANY DETENTION BASINS WITH SLOPES LESS THAN 1% REQUIRE CONCRETE CHANNEL.

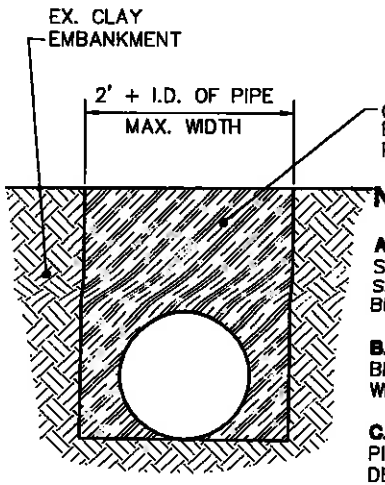
B. DIFFERENT SHAPE OR SIZE OF CONCRETE CHANNEL MAY BE REQUIRED DEPENDING ON DESIGN.

C. ALL WORK SHALL BE DONE IN ACCORDANCE WITH VILLAGE SPECIFICATIONS.

D. BOTTOM OF DRAINAGE DITCH SHALL BE FORMED BEFORE PLACING CONCRETE, ALL FORMS SHALL BE SET TO GRADE AND ALIGNMENT.

E. TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED AT 10' INTERVALS. THE GROOVES SHALL BE CUT TO A MINIMUM DEPTH OF 1".

PAVED CONCRETE CHANNEL DETAIL



NOTES

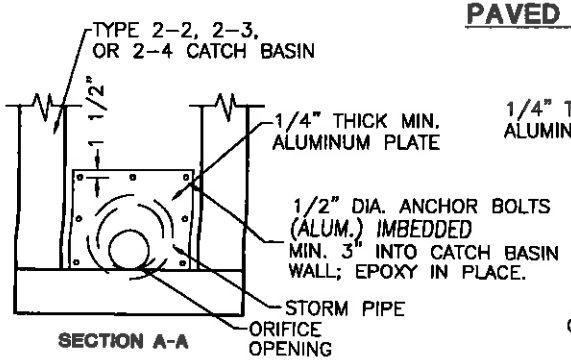
A. EXTRA COMPACTION AND CARE SHALL BE TAKEN TO ENSURE WATER SEALING OF DIKE AND PROPER CLAY BEDDING OF PIPE.

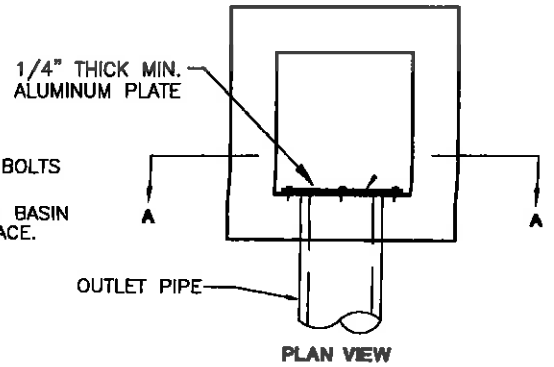
B. COMPACTION REQUIREMENTS SHALL BE 95% STANDARD MAXIMUM DRY WEIGHT DENSITY.

C. THIS SHALL BE REQUIRED AT ALL PIPES ENTERING OR EXITING THE DETENTION BASIN.

D. PAYMENT FOR THESE ITEMS SHALL BE INCIDENTAL TO ITEM 603.

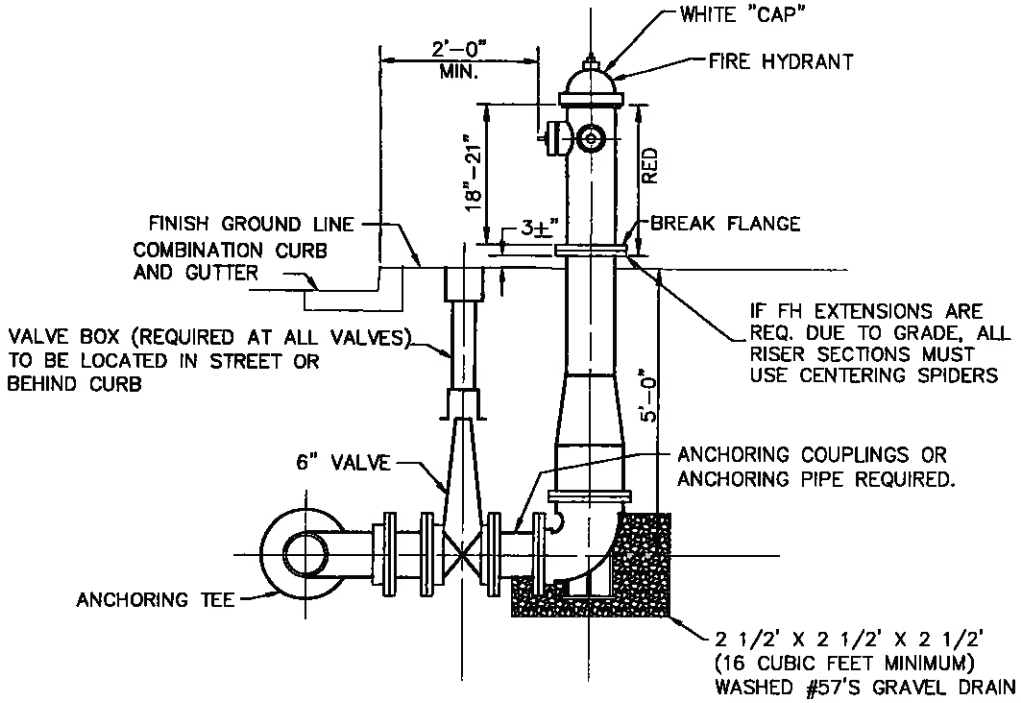
CLAY TRENCH DETAIL THROUGH DETENTION BASIN



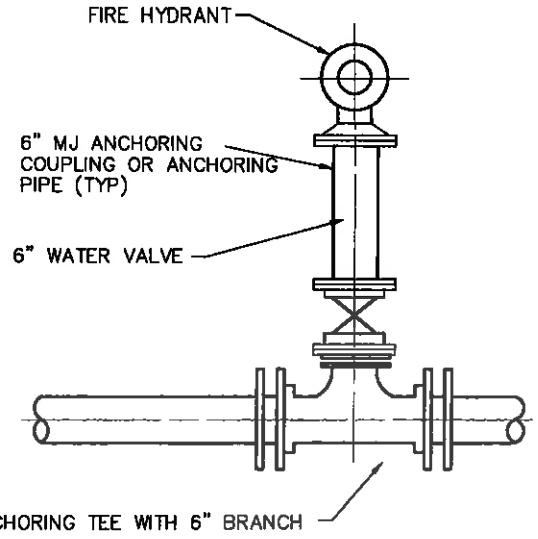


DETENTION OUTLET ORIFICE

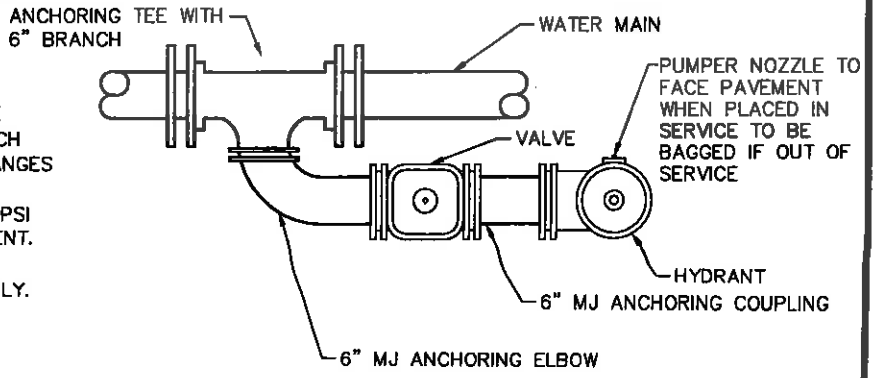
CITY OF TIPP CITY CHOICE ONE ENGINEERING	# DETENTION BASIN DETAILS	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 600-15



SECTION VIEW



BASIC TEE DETAIL PLAN



SPECIAL MECHANICAL JOINT HYDRANT TEE DETAIL PLAN

NOTES

A. FIRE HYDRANTS – MUELLER SUPER CENTURION 250; MECHANICAL JOINT; TWO 2–1/2" HOSE NOZZLE WITH NATIONAL STANDARD THREAD CONNECTIONS; ONE 4 1/2" I.D AND 5" O.D., 4 THREADS PER INCH PUMPER NOZZLE NATIONAL STANDARD THREADS; CONFORMING TO AWWA; CCW TO OPEN; BREAK FLANGES 3" ABOVE GRADE.

B. GATE VALVES SHALL BE AWWA C–515, RESILIENT WEDGE, NONRISING STEM, MECHANICAL JOINT, 150 PSI WORKING PRESSURE, CCW TO OPEN WITH ARROW INDICATING OPEN DIRECTION, MUELLER OR EQUIVALENT.

C. VALVE BOXES SHALL BE 3–PIECE, ADJUSTABLE 36 INCH TO 48 INCH, 5–1/4" ADJUSTABLE SHAFT, 6 INCH DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.

D. ALL FITTINGS TO BE RESTRAINED.

E. ALL FITTINGS TO BE AWWA C–153 DUCTILE IRON, COMPACT.

F. ALL VALVES AND HYDRANTS SHALL OPEN LEFT BY TURNING IN A COUNTER CLOCKWISE DIRECTION.

G. CONTRACTOR TO FACE HYDRANT AS REQUIRED BY THE CITY.

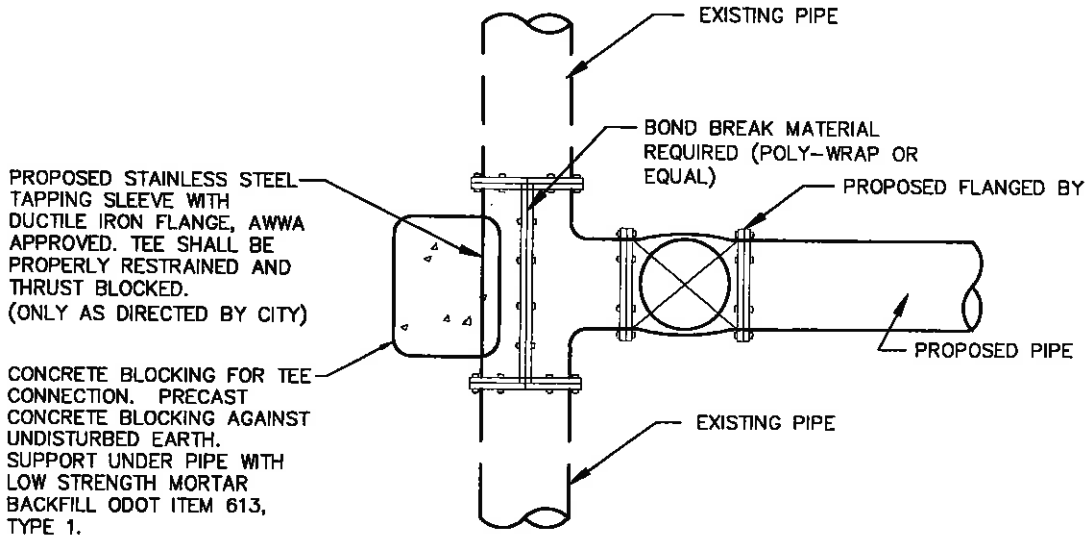
H. WATER MAIN SHALL BE DUCTILE IRON PIPE CLASS 53 CEMENT LINED, AWWA C–151, WITH PUSH ON "BELL–TITE" OR EQUAL JOINTS.

I. THE LAYING OF PIPE ON EXISTING DIRT WITH THE BELLS CUT OUT SHALL NOT BE PERMITTED.

J. THE OPEN ENDS OF ALL PIPES AND SPECIAL CASTINGS SHALL BE PLUGGED OR OTHERWISE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.

K. THE FIRE DEPARTMENT SHALL COMPLETE A FUNCTION/FLOW TEST PRIOR TO BEING PLACED INTO SERVICE.

CITY OF TIPP CITY CHANCE ONE ENGINEERING	FIRE HYDRANT	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 800–1



TAPPING SLEEVE AND VALVE DETAIL

ALL JOINTS TO BE RESTRAINED.

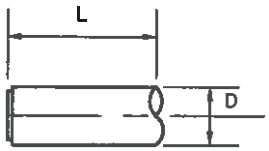
NOTES

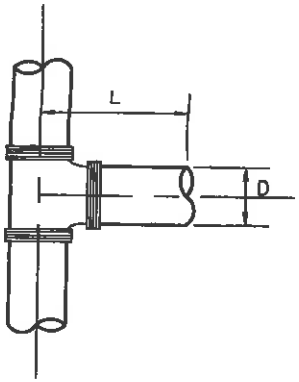
A. BELL JOINT RESTRAINTS – USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.

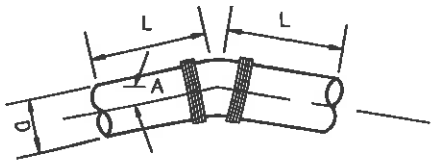
B. ALL BELLS OF PIPE USING "FIELD LOCKS" SHALL BE PAINTED W/ RED PAINT

C. MECHANICAL JOINT RESTRAINTS – EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.

D. CONTRACTOR TO USE RESTRAINED JOINTS UNLESS THRUST BLOCKING IS PREAPPROVED FOR SPECIAL CONDITIONS BY THE CITY PRIOR TO THE BEGINNING OF CONSTRUCTION







SEE TABLE FOR L, REQUIRED LENGTH OF RESTRAINED JOINTS

REQUIRED LENGTH OF RESTRAINED JOINTS IN FEET									
	D–DIAMETER OF PIPE								
A ~ DEGREE OF DEFLECTION		4"	6"	8"	10"	12"	16"	20"	24"
	11 1/4°	*	*	*	*	*	5	5	6
	22 1/2°	*	2	3	5	6	8	10	12
	45°	4	8	12	14	20	30	36	45
	90°	12	26	38	48	66	98	125	145
	TEE	12	26	38	48	66	98	125	145
	END	12	26	38	48	66	98	125	145

*REQUIRED RESTRAINED JOINT AT FITTING ONLY
USE MEGALUG MECHANICAL JOINT RESTRAINT OR EQUAL.
FIRE HYDRANT BRANCHES MUST BE ANCHOR PIPE

DESIGN PARAMETERS

LAYING CONDITIONS – TYPE 5
SOIL DESIGNATION – SILT
DEPTH OF COVER – 4'–6"
DESIGN PRESSURE – 80 PSI
SAFETY FACTOR – 1.50
POLYWRAPPED PIPE AS DIRECTED BY THE CITY

REQUIRED LENGTH OF RESTRAINED JOINTS FOR WATER MAINS

CITY OF TIPP CITY

CHANCE ONE ENGINEERING

RESTRAINING JOINTS AND TAPPING SLEEVE FOR WATER MAINS

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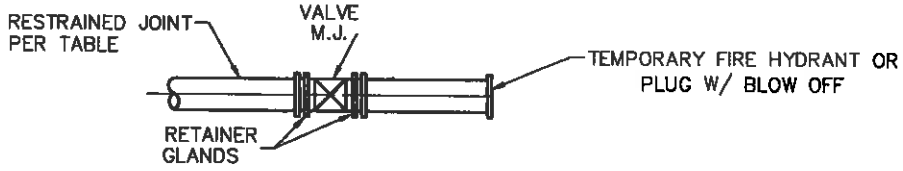
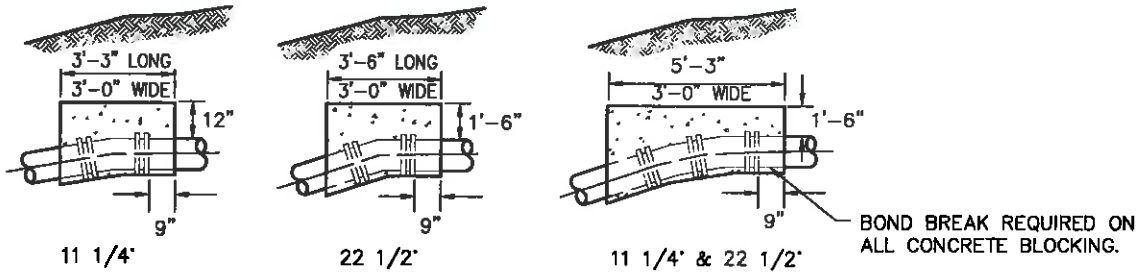
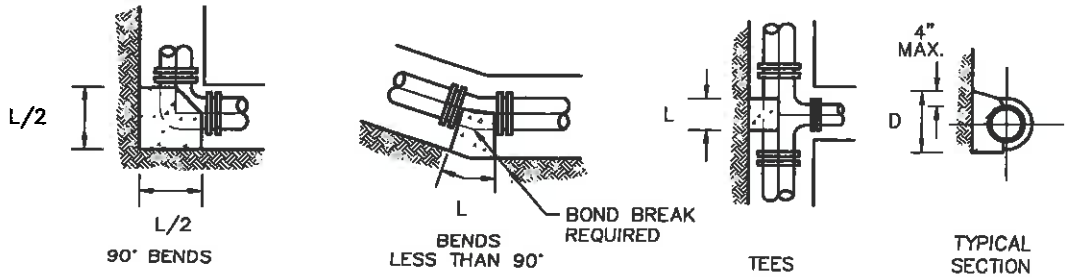


DETAIL - END OF WATER LINE



CONCRETE BLOCKING FOR VERTICAL BENDS



CONCRETE BLOCKING FOR HORIZONTAL BENDS

BENDS

SIZE OF PIPE	DEGREE OF BEND							
	11 1/4°		22 1/2°		45°		90°	
	L	D	L	D	L	D	L	D
3", 4", 6"	8"	6"	10"	6"	20"	6"	36"	6"
8"	9"	8"	14"	8"	24"	9"	50"	8"
12"	14"	12"	22"	12"	30"	16"	60"	15"
16"	18"	16"	24"	18"	33"	36"	70"	22"

TEES

RUN	BRANCH							
	3",4",6"		8"		12"		16"	
	L	D	L	D	L	D	L	D
3", 4", 6"	16"	6"						
8"	14"	8"	18"	12"				
12"	9"	12"	18"	12"	24"	18"		
16"	8"	16"	14"	16"	28"	16"	30"	26"

NOTES

A. CARE SHALL BE TAKEN TO KEEP CONCRETE AWAY FROM MECHANICAL JOINTS BY PLACING VISQUEEN OR OTHER APPROVED MATERIAL OVER PIPE BEFORE PLACING OF CONCRETE. BOLTS SHALL NOT BE ENCASED IN CONCRETE.

B. CONCRETE FOR BLOCKING VALVES AND FITTINGS SHALL CONFORM TO SECTION ODOT 499 CLASS C.

C. CONTRACTOR SHALL USE THE THRUST BLOCKS AS SHOWN ONLY IF PREAPPROVED FOR SPECIAL CONDITIONS BY THE CITY.

CITY OF TIPP CITY	CONCRETE BLOCKING FOR WATER MAINS	REVISIONS:	DATE APPROVED: MAR 2015
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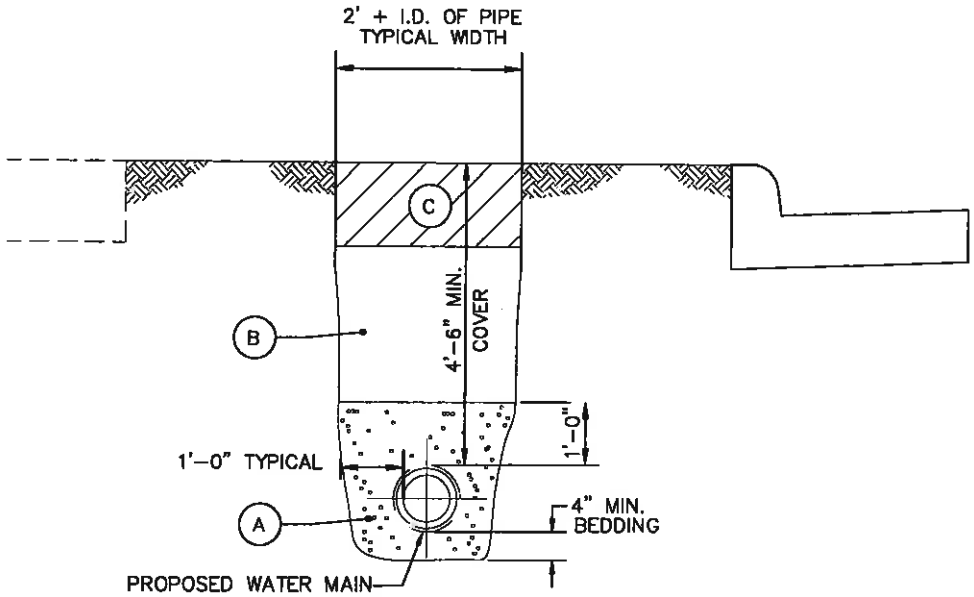

WATER MAIN TRENCH DETAIL

(SHOWN AS "OFF PAVEMENT" APPLICATION)

WATER MAIN CROSSING SEPARATION

WHENEVER A SANITARY SEWER AND WATER LINE MUST CROSS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER LINE. *IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18-INCH VERTICAL SEPARATION, THE SANITARY SEWER SHALL BE* CONSTRUCTED WITH WATER LINE TYPE MATERIALS WHICH WILL WITHSTAND A 50 PSI PRESSURE TEST.

AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF 18 INCHES FROM STORM AND SANITARY SEWERS. ALSO ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM/SANITARY SEWERS AS POSSIBLE.

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, ODOT 603 TYPE 3 (#57 OR #8), OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES OUTSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS CAN BE COMPACTED WITH EXISTING NATIVE MATERIAL IN 12 INCH MAXIMUM LIFTS OR AS APPROVED BY THE CITY. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4 INCH DIAMETER.

ALL TRENCHES INSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6 INCH MAXIMUM LIFTS.

A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAY BE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE CITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6 INCHES OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN-PAVEMENT AREAS SHALL FOLLOW MISCELLANEOUS ROADWAY NOTES SHOWN ON PAGE 300-15.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.

MATERIAL SPECIFICATIONS

A. WATER MAIN SHALL BE AWWA C-151 DUCTILE IRON PIPE CLASS 53 FOR 4" TO 16" AND CLASS 54 FOR 20" AND GREATER, WITH SLIP-ON JOINTS AND RUBBER GASKETS. ALL MATERIALS SHALL BE DOMESTIC MADE ONLY, UNLESS OTHERWISE APPROVED.

B. BELL JOINT RESTRAINTS – USE FIELD LOCK BY U.S. PIPE OR APPROVED EQUIVALENT.

C. MECHANICAL JOINT RESTRAINTS – EBAA IRON MEGALUG RETAINER GLAND OR EQUIVALENT.

D. FIRE HYDRANTS – MUELLER SUPER CENTURION 250; MECHANICAL JOINT; TWO 2-1/2" HOSE NOZZLES, WITH NATIONAL STANDARD THREAD CONNECTIONS; ONE 4.5" I.D AND 5" O.D., 4 THREADS PER INCH PUMPER NOZZLE NATIONAL STANDARD THREADS; CONFORMING TO AWWA; CCW TO OPEN; BREAK FLANGES 3" ABOVE GRADE.

E. GATE VALVES (THRU 12") – AWWA C-515, RESILIENT WEDGE, NON-RISING STEM, MECHANICAL JOINT, 150 PSI WORKING PRESSURE, CCW TO OPEN, OPEN LEFT WITH ARROW INDICATING OPEN DIRECTION. MAX BURY 6'-0" UNLESS STEM RISERS ARE PLACED.

F. VALVE BOXES – 3-PIECE CAST IRON 6" DIAMETER NOMINAL, ADJUSTABLE SCREW TYPE, COVER MARKED "WATER", DOMESTIC MADE ONLY.

G. SERVICE LINE – TYPE "K" COPPER TUBE WITH COMPRESSION FITTINGS.

H. CURB STOP – BRASS CONFORMING TO AWWA C-800, 300 PSI RATED. (FORD OR MUELLER)

I. CURB BOXES – 2-1/2" SCREW TYPE, BUFFALO STYLE CAST IRON LID WITH PENTAGON HEAD PLUG.

J. ALL SERVICE CONNECTIONS REQUIRE A METER.

K. VALVE SIZING
- 6" TO AND INCLUDING 12" TO BE A GATE VALVE OPENING LEFT
- 16" AND LARGER–TO BE A BUTTERFLY VALVE OPENING LEFT

L. LEAD FREE/LOW LEAD MATERIAL IS PREFERRED WHENEVER POSSIBLE AS REQUIRED BY OPEA.

HYDROSTATIC TEST

A. AFTER THE PIPE HAS BEEN LAID AND BACKFILLED, ALL NEWLY LAID PIPE OR VALVED SECTION SHALL BE SUBJECTED TO HYDROSTATIC PRESSURE AND LEAKAGE TEST. ALL WATER MAINS AND LATERALS TO THE CURB STOP MUST BE HYDROSTATICALLY TESTED (AWWA C-600). THE TESTS MUST BE PERFORMED IN THE PRESENCE OF A REPRESENTATIVE OF THE CITY OF TIPP CITY. THE LEAKAGE TEST PRESSURE SHALL BE NOT LESS THAN 150 PSI. THE DURATION OF THE LEAKAGE TEST SHALL NOT BE LESS THAN 2 HOURS. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP TAKING WATER FROM AN AUXILIARY SUPPLY. ALL PIPING MUST BE PROPERLY FILLED AND FLUSHED TO DISPEL ALL AIR BEFORE THE TEST IS MADE USING POTABLE WATER. COPPER SERVICE BRANCHES FROM THE WATER MAIN TO THE CURB STOP SHALL BE TESTED AS A PART OF THE REQUIRED HYDRO TESTING.

B. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVED SECTION THEREOF, NECESSARY TO MAINTAIN THE SPECIFIED LEAKAGE TEST PRESSURE AFTER THE PIPE HAS BEEN FILLED WITH WATER AND THE AIR EXPELLED.

C. NO PIPE INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE EXCEEDS THE LEAKAGE DETERMINED BY THE FOLLOWING FORMULA:

Where: S = length of pipe tested, in ft.
D = pipe diameter, in inches
P = average test pressure
L = allowable leakage per hour

$$L = \frac{S * D * \sqrt{P}}{148{,}000}$$

During the hydrostatic test, a thorough examination of all piping, fittings, valves, hydrants, etc. shall be performed. Leaking joints shall be tightened and cracked or otherwise defective material shall be removed and replaced and the test shall be repeated until satisfactory results are obtained.

D. NO REPRESSURIZATION OR RESTARTING OF THE TEST IS PERMITTED.

E. IF TEST FALLS BELOW 150 PSI AT ANY TIME DURING THE 2 HOUR TEST. TEST HAS FAILED AND SHOULD BE RE-EVALUATED PRIOR TO SECOND TESTING.

F. A REPRESENTATIVE FROM THE CONTRACTOR MUST BE PRESENT DURING THE TESTING AND MUST BE THE PERSON PERFORMING ALL ASPECTS OF THE TEST. THE CITY IS ONLY TO WITNESS THE TESTING.

DISINFECTION

A. AFTER SATISFACTORY HYDROSTATIC TESTING, THE COMPLETED WATER WORK SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C-651 BY THE CONTRACTOR. THE TEST SHOULD INDICATE 50 PARTS PER MILLION (PPM) OR HIGHER OF CHLORINE. THE RESIDUAL AFTER 24 HOURS MUST BE 25 PPM OR HIGHER.

B. MAINTAIN PIPES FREE OF DIRT AND FOREIGN MATTER DURING CONSTRUCTION BY DEWATERING TRENCH AND SEALING OPEN PIPE BARRELS. THIS IS ALSO A REQUIREMENT IF REPAIRS OCCUR.

C. STERILIZE MAIN IN ACCORDANCE WITH AWWA C-651. INJECT 3% TO 5% HYPO-CHLORITE SOLUTION TO PROVIDE 50 TO 60 MG PER LITER CONCENTRATION IN MAIN. CHLORINE MAY BE PLACED IN EACH SECTION OF PIPE AT THE TIME OF INSTALLATION. SAMPLE WATER AT EACH HYDRANT OR IF NO HYDRANT IS AVAILABLE, AT A TAP IN THE PROPOSED LINE. ANALYZE SAMPLE USING ORTHOTOLIDINE REAGENT TO VERIFY FREE CHLORINE CONCENTRATION. MAINTAIN CONCENTRATION IN MAIN FOR 24 HOURS. SAMPLE HYDRANTS AT COMPLETION OF STERILIZATION VERIFYING MINIMUM CHLORINE RESIDUAL (SEE CITY WATER DEPARTMENT FOR MINIMUM REQUIREMENTS).

D. FLUSH CHLORINE SOLUTION TO WASTE INTO SANITARY SEWER AT A CONTROLLED RATE, NOT TO EXCEED 25 GPM. IF CHLORINE RESIDUAL DROPS IN 10 MG PER LITER, FLUSH MAIN AT 2 FPS AND REPEAT STERILIZATION PROCEDURE.

E. WATER SAMPLES – PERFORM BACTERIOLOGICAL TEST PER AWWA C-651. SAMPLE MAIN AT HYDRANT OR IF HYDRANT IS NOT AVAILABLE, AT A TAP IN THE PROPOSED LINE. THIS IS TO BE PERFORMED PRIOR TO TRANSFER OF SERVICE AT CONTRACTOR'S EXPENSE. CITY PERSONNEL WILL COLLECT BACTERIA SAMPLES.

ALLOWABLE LEAKAGE PER 1000 FT. (305M) OF PIPELINE (GPH+)

AVG. TEST PRESSURE (PSI) BAR	NOMINAL PIPE DIAMETER– INCHES											
	3	4	6	8	10	12	14	16	18	20	24	30
250(17)	0.32	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56	3.21
225(16)	0.30	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43	3.04
200(14)	0.29	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29	2.87
175(12)	0.27	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15	2.68
150(10)	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99	2.48
125(9)	0.23	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.51	1.81	2.27

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

WATER MAIN MATERIAL AND TESTING

REVISIONS:

DATE APPROVED: MAR 2015

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NOTES

A. NO WORK SHALL BE APPROVED OR ACCEPTED BY THE CITY UNLESS 2 WORKING DAYS NOTICE OF COMMENCING WORK IS GIVEN TO THE CITY.

B. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR THE DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE CITY, UNLESS OTHERWISE APPROVED.

C. THE MINIMUM LENGTH OF PIPE NIPPLES SHALL BE 18" UNLESS OTHERWISE APPROVED BY THE CITY.

D. ALL CUSTOMERS SHALL MEET BACKFLOW PREVENTION REQUIREMENTS AS PER CITY STANDARDS.

E. ALL WATERLINE CONSTRUCTION INCLUDING EXTENSIONS ON PRIVATE PROPERTY SHALL FOLLOW THE CITY STANDARDS, ODOT ITEM 638, AND AWWA STANDARDS WHICHEVER IS MORE RESTRICTIVE AS DETERMINED BY THE CITY.

F. OPERATION OF CITY FIRE HYDRANTS, VALVES, METERS, SERVICES, STOPS, AND ALL OTHER MECHANICAL INFRASTRUCTURE ITEMS IS STRICTLY PROHIBITED.

G. ALL WATER MAINS SHALL HAVE A MINIMUM DEPTH OF 4–1/2 FEET AND A MAXIMUM DEPTH OF 6 FEET FROM TOP OF PIPE TO SURFACE, UNLESS REQUIRED BY DESIGN.

PIPE

A. ALL PIPE FITTINGS SHALL BE DUCTILE IRON.

B.

WATER MAIN MINIMUM SIZE UNLESS OTHERWISE APPROVED	
RESIDENTIAL	8"
COMMERCIAL	10"
INDUSTRIAL	12"

C. DEADENDS ARE NOT PERMITTED AND MUST BE LOOPED UNLESS THEY ARE DEEMED UNPRACTICAL BY THE CITY ENGINEERING DEPARTMENT AFTER A REVIEW OF A WATER MAIN DESIGN. WHEN APPROVED, THEY SHALL BE TERMINATED WITH A FIRE HYDRANT AT THE END.

EXCAVATION AND PIPE LAYING

A. THE OPEN ENDS OF ALL PIPES SHALL BE CLOSED WITH A WATERTIGHT PLUG TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT AND AT OTHER TIMES OF INTERRUPTION OF THE WORK.

STORAGE AND HANDLING OF MATERIALS

A. PIPE FITTINGS, VALVES, FIRE HYDRANTS AND OTHER MATERIALS MUST BE PROPERLY STORED ON THE JOB SITE. PROPER TOOLS FOR THE SAFE AND CONVENIENT HANDLING AND PLACING OF PIPE AND FITTINGS SHALL BE USED. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO THE COATINGS OF THE PIPE AND FITTINGS, AND ANY DAMAGE SHALL BE REMEDIED AS DIRECTED. NO DAMAGED OR DEFECTIVE PIPE OR FITTINGS SHALL BE USED..

B. PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE USED, AND SHALL BE KEPT CLEAN UNTIL WORK IS COMPLETED BY USING WATER TIGHT PLUGS ON OPEN ENDS OF PIPES IN THE GROUND.

FITTINGS, VALVES AND HYDRANTS

A. FITTINGS IN SIZES 4" THROUGH 48" SHALL CONFORM TO ALL REQUIREMENTS OF AWWA C–153. FITTINGS AND SPECIALS 12" AND SMALLER SHALL BE CLASS 250. LARGER FITTINGS SHALL BE CLASS 150. FITTINGS AND SPECIALS SHALL HAVE MECHANICAL JOINTS AND SHALL BE DUCTILE IRON. CLUSTER VALVES WHENEVER POSSIBLE UNLESS APPROVED BY THE CITY.

B.

MAXIMUM SPACING UNLESS OTHERWISE APPROVED	HYDRANTS	VALVES
SINGLE & TWO FAMILY RESIDENTIAL	300'–400'	1000'
INDUSTRIAL, COMMERCIAL & MULTI–FAMILY	300'	500'

C. ALL TEES AND CROSSES SHALL BE VALVED IN EACH DIRECTION UNLESS OTHERWISE APPROVED.

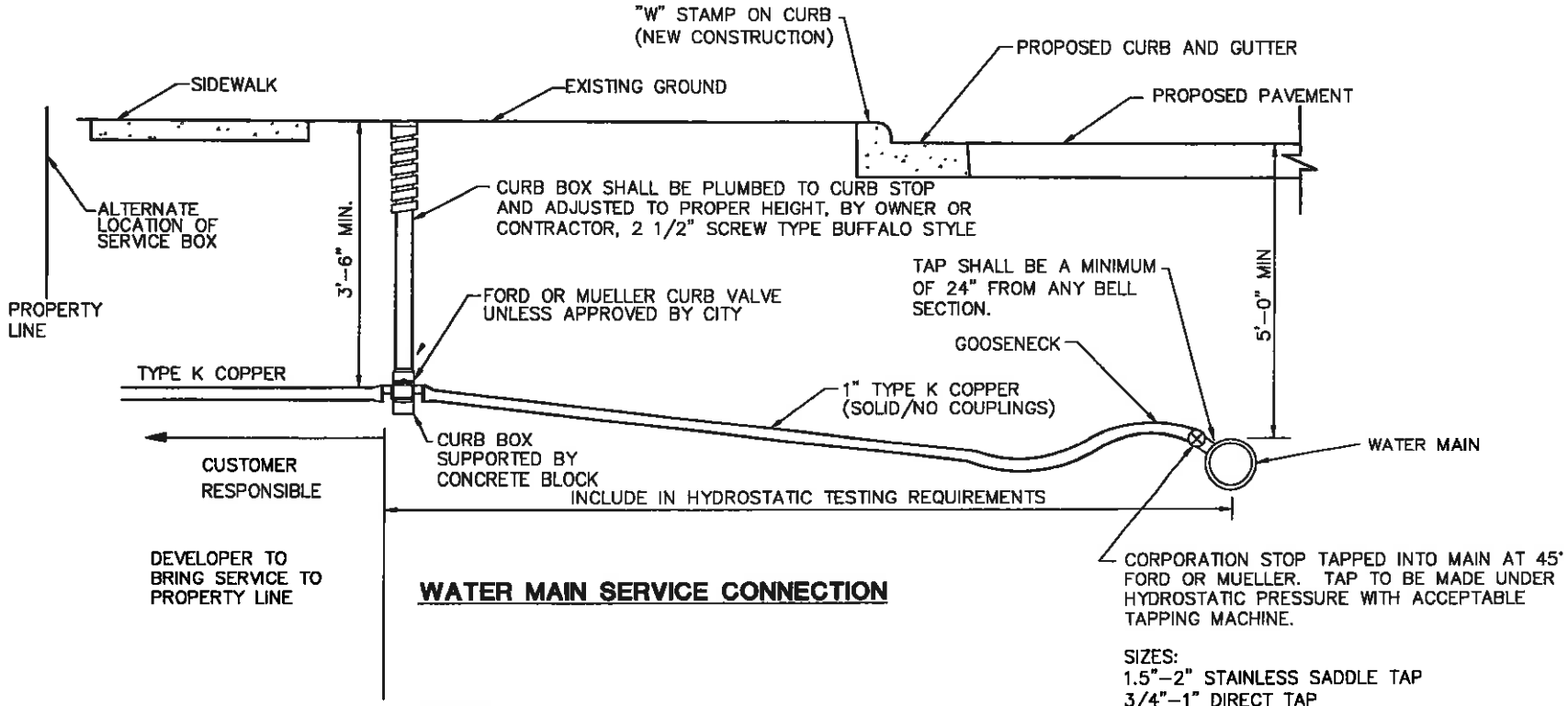
D. NO VALVE SHALL BE OPERATED BY PERSONNEL OTHER THAN A REPRESENTATIVE EMPLOYED BY THE CITY.

E. ALL VALVES AND FITTINGS MUST BE DOMESTIC MADE.

UTILITY STAKING

A. OFFSETS EVERY 25 FEET ON CURVES. OFFSETS EVERY 100 FEET ON STRAIGHT SECTIONS. FLOW LINE OF WATER MAIN (CUT) MARKED EVERY 100 FEET AND OFFSETS SHALL BE CLEARLY MARKED AND EVERY HYDRANT WITH TOP OF CURB ELEVATION.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	MISCELLANEOUS WATER NOTES	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 800–6



WATER MAIN SERVICE CONNECTION

NOTES

A. 1" WATER SERVICE SHALL BE TYPE K COPPER.

B. WATER SERVICE SHALL BE A MINIMUM OF 10' MEASURED HORIZONTALLY FROM THE SEWER SERVICE AND SHALL BE A MINIMUM OF 18" ABOVE THE CROWN OF THE SANITARY SEWER MAIN WHERE THE WATER SERVICE CROSSES THE SEWER MAIN. WATER SERVICE MAY BE LAID ON BENCH IN THE SEWER LATERAL TRENCH IF CROWN IS A LEAST 18" BELOW INVERT OF WATER SERVICE, AND THE MINIMUM DISTANCE BETWEEN THE WATER SERVICE AND THE SEWER LATERAL IS 5'-0".

C. INSIDE METER SETTER PROVIDED WITH TAP FEE. INSIDE SETTER CUSTOMER IS RESPONSIBLE FOR METER FREEZE UP. CITY WILL SET THE METER.

D. THE CURB BOX TO BE PLACED BETWEEN THE CURB AND PROPERTY LINE.

E. CURB BOX MAY BE PLACED BETWEEN SIDEWALK AND PROPERTY LINE, AS DIRECTED BY THE CITY.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	WATER MAIN SERVICE CONNECTION	REVISIONS:	DATE APPROVED: MAR. 2015 PAGE No. 800-7

NOTES

A. SEE "STANDARDS FOR TAPS, SERVICES AND METERS" FOR TYPICAL NOTES.

B. BACKFLOW PREVENTION DEVICE REQUIRED TO MEET CURRENT EPA REGULATIONS.

C. PROVIDE APPROVED DRAIN FOR IRRIGATION SYSTEM.

D. ALTERNATE DESIGNS MUST BE SUBMITTED FOR APPROVAL.

E. THE CURB BOX MUST BE BROUGHT UP TO FINISH GRADE.

F. NO OUTLETS ARE ALLOWED BETWEEN METER AND THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER WITH THE EXCEPTION OF ONE SCREW PLUG–IN TAP FOR WINTERIZING/DRAINAGE PURPOSES.

G. THE UNDERGROUND WATER SERVICE SHALL BE K–COPPER UP TO THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER.

H. THE INSTALLATION SHALL BE INSPECTED BY THE CITY.

INSTRUCTIONS FOR THE INSTALLATION OF IRRIGATION METERS AND BACKFLOW PREVENTERS FOR IRRIGATION

A. MAKE DRAWING OF THE PROPOSED IRRIGATION SYSTEM. THIS DRAWING MUST BE APPROVED BY CITY.

B. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY "STANDARDS FOR TAPS, SERVICES AND METERS".

C. GET THE NECESSARY PERMITS.

1) TAPPING FEE

D. THE CONTRACTOR MUST BE REGISTERED WITH THE MIAMI COUNTY HEALTH DEPARTMENT.

1) THE CONTRACTOR MUST OBTAIN A PERMIT TO INSTALL AND PAY ALL APPLICABLE FEES TO THE COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION.

2) A PLUMBER WITH AN OHIO LICENSE/BACKFLOW CERTIFICATION MUST BE OBTAINED TO INSTALL AND TEST THE BACKFLOW DEVICES.

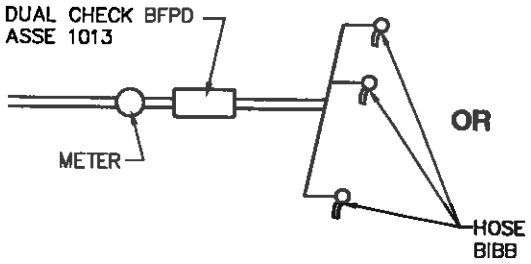
E. AFTER THE BACKFLOW PREVENTERS HAVE BEEN INSTALLED, PLEASE FILL OUT THE FORMS COMPLETELY WITH THE OWNER/ LEASE HOLDER'S NAME, ADDRESS (WHERE THE BACKFLOW PREVENTER WAS INSTALLED), LOCATION OF THE BACKFLOW PREVENTER, SIZE, MAKE, MODEL, TEST RESULTS BY A LICENSED PLUMBER, TESTED AT TIME OF INSTALLATION AND EVERY 12 MONTHS THERE AFTER, AND SERIAL NUMBER OF THE BACKFLOW PREVENTER. PLEASE RETURN THE COMPLETED FORMS TO THE CITY AND MIAMI COUNTY HEALTH DEPARTMENT.

F. CONTACT THE CITY WATER DEPARTMENT AFTER THE WORK HAS BEEN COMPLETED. BACKFLOW PREVENTERS HAVE TO BE INSPECTED BY THE CITY & THE COUNTY.

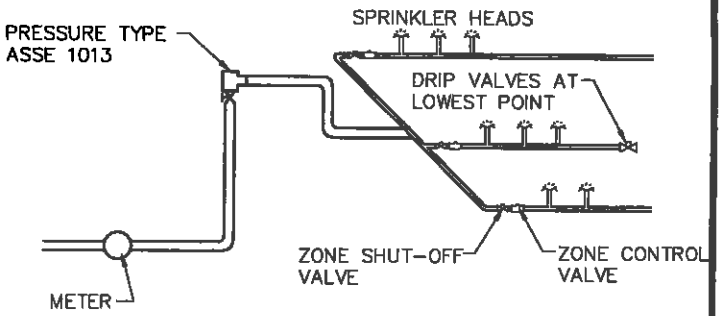
G. SEPARATE VALVES, ONE BEFORE AND AFTER, MUST BE PLACED NEAR THE BACKFLOW PREVENTER WHENEVER THE EXISTING BACKFLOW IS REMOVED.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	STANDARD INSTALLATION FOR IRRIGATION METERS AND BACKFLOW PREVENTER	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 800–8

HOSE BIBB



SPRINKLER SYSTEM



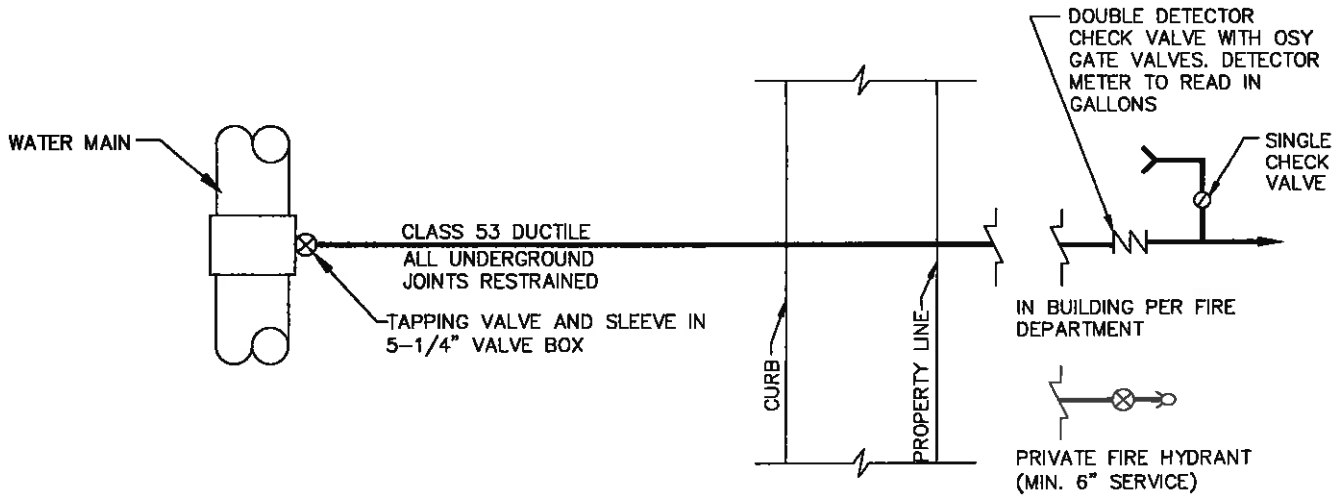
CONDITIONS

A. SHUT-OFF VALVES ARE ALLOWED DOWNSTREAM OF THE BFPD.
B. THE PRESSURE TYPE VACUUM BREAKER MUST BE A MINIMUM OF 12 INCHES ABOVE THE HIGHEST SPRINKLER HEAD.

NOTES

A. SEE "STANDARDS FOR TAPS, SERVICES AND METERS" FOR TYPICAL NOTES.
B. BACKFLOW PREVENTION DEVICE REQUIRED TO MEET CURRENT EPA REGULATIONS.
C. PROVIDE APPROVED DRAIN FOR IRRIGATION SYSTEM.
D. ALTERNATE DESIGNS MUST BE SUBMITTED FOR APPROVAL.
E. THE CURB BOX MUST BE BROUGHT UP TO FINISH GRADE.
F. NO OUTLETS ARE ALLOWED BETWEEN METER AND THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER WITH THE EXCEPTION OF ONE SCREW PLUG-IN TAP FOR WINTERIZING/DRAINAGE PURPOSES.
G. THE UNDERGROUND WATER SERVICE SHALL BE K-COPPER UP TO THE BACKFLOW PREVENTER OR HOSE BIBB VACUUM BREAKER.
H. THE INSTALLATION SHALL BE INSPECTED BY THE CITY.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	IRRIGATION DETAILS	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 800-9



4" AND LARGER FIRE LINE SERVICE

(METER REQUIRED)

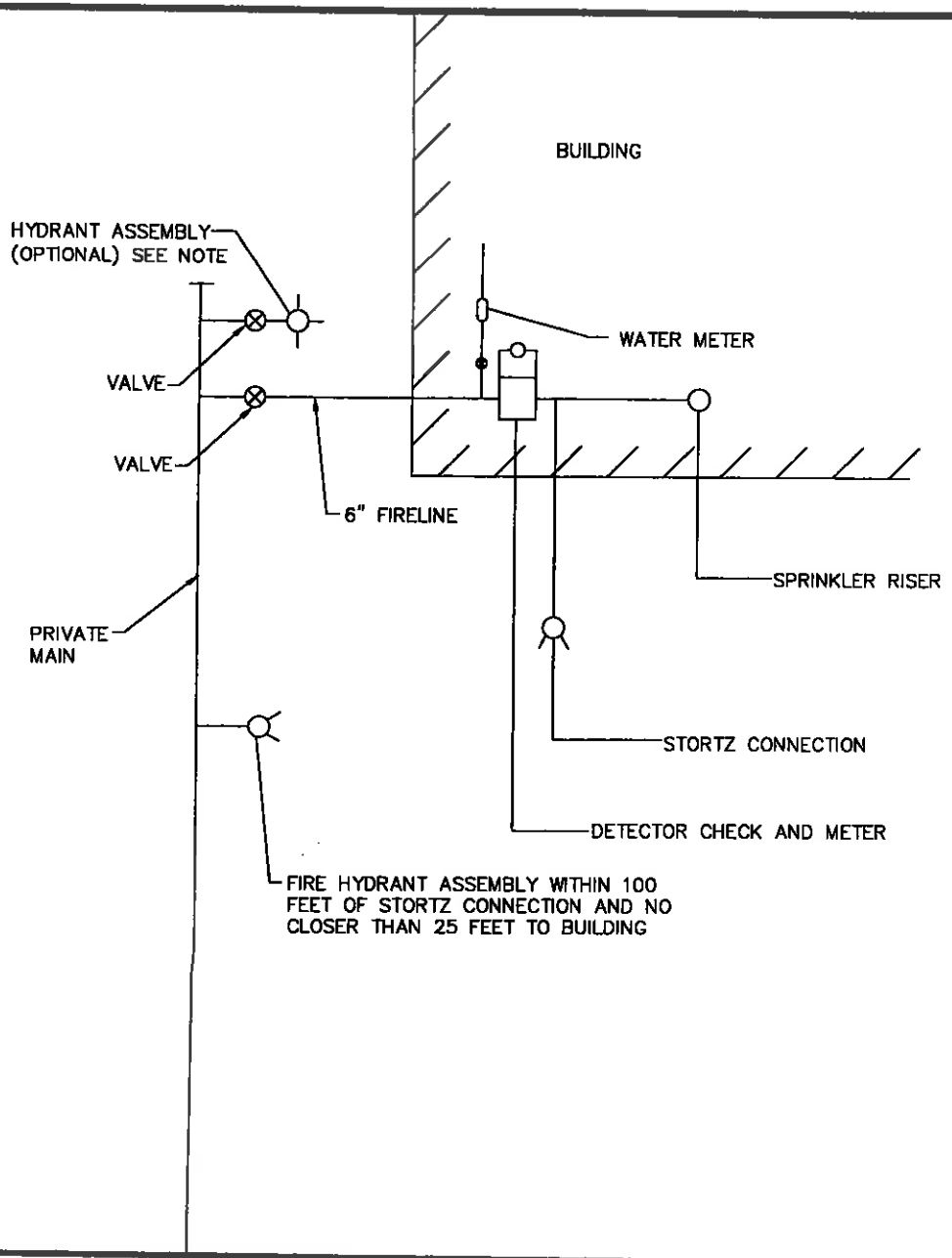
WALL/POST INDICATOR VALVES SHALL BE ADDED ON PREMISES AT FIRE DEPARTMENT REQUEST

SERVICE TEES ARE PERMITTED IF

A. SHOWN ON AN APPROVED SET OF CONSTRUCTION DRAWINGS.

B. 4 INCH MINIMUM BRANCH AND SERVICE LINE WITH TAPPING SLEEVE AND GATE VALVE.

CITY OF TIPP CITY	4" AND LARGER FIRE LINE	REVISIONS:	DATE APPROVED: MAR. 2015
CHOICE ONE ENGINEERING			PAGE No. 800-10



REVIEW AND FEES

A. SEVEN SETS OF SITE PLANS SHALL BE SUBMITTED TO THE CITY BUILDING INSPECTOR TO BE REVIEWED BY THE BUILDING INSPECTOR, FIRE DEPT. OFFICIAL, ELECTRIC DISTRIBUTION, WATER DEPARTMENT, CITY ENGINEER AND THE PLANNING COORDINATOR.

TESTING

A. THE CITY FIRE DEPARTMENT PERSONNEL WILL CONDUCT SELECTIVE FIRE HYDRANT TESTING FOR RESIDUAL PRESSURE. THE TESTING IS DONE AS NEEDED.

GENERAL NOTES

A. FIRE LINE AND HYDRANT INSTALLATION, TESTING AND MATERIALS SHALL BE TH SAME SPECIFICATIONS AS STATED IN THE CONSTRUCTION STANDARDS AND DRAWINGS. THESE CONSTRUCTION STANDARDS AND DRAWINGS SHALL ALSO BE FOLLOWED FOR WATERLINE EXTENSIONS ON PRIVATE PROPERTY THAT WILL PROVIDE FIRE LINE OR DOMESTIC WATER SERVICE.
B. THE CITY FIRE LINE REVIEW FORMS SHALL BE COMPLETED WITH TWO SETS OF PLANS FURNISHED TO THE CITY BUILDING INSPECTOR.
C. CITY OF CERTIFIED I.S.O TEST SHALL NOT BE CERTIFIED TO THE STATE OF OHIO UNTIL THE FOLLOWING ITEMS HAVE BEEN COMPLETED.
1.) ONE SET OF DRAWINGS FURNISHED TO THE CITY ENGINEERING DEPT. AND
2.) FIRE LINE INSTALLATION FORM SHALL BE COMPLETE
D. NO ADDITIONAL BOOSTER PUMPS SHALL BE INSTALLED FOR THE DOMESTIC LINE.

ALL MAINTENANCE SHOULD COMPLY WITH THE MOST CURRENT OHIO FIRE CODE AND NFPA 25.

E. FIRE LINE MAINTENANCE SHALL BE PERFORMED BY A CERTIFIED FIRE LINE CONTRACTOR THROUGH THE OFFICE OF THE STATE FIRE MARSHALL.

F. TESTING OF FIRE LINES SHALL BE PERFORMED BY A STATE–APPROVED FIRE LINE INSTALLER.

E. A CERTIFIED FIRE LINE CONTRACTOR LICENSED THROUGH THE OFFICE OF THE STATE FIRE MARSHALL SHALL PERFORM THE WORK.

SPRINKLER NOTES

A. SUBMIT TO: MIAMI COUNTY BUILDING DEPARTMENT.
B. HYDRAULIC CALCULATIONS FROM THE SPRINKLER SYSTEM DESIGNER SHALL BE SUBMITTED TO THE FIRE DEPT. WITH THE SITE PLAN FOR REVIEW.
C. INSTALLATION OF A FLOW SENSOR MONITOR WILL BE REQUIRED TO REPORT TO AN APPROVED MONITORING SYSTEM. (I.E. POLICE, PRIVATE STATION, ETC.)
D. THERE SHALL BE AN EXISTING OR NEW HYDRANT INSTALLED WITHIN 75' OF THE SIAMESE CONNECTION AND NO CLOSER THAN 25' OF A BUILDING. EXCEPTIONS MUST BE SUBMITTED TO THE CITY FIRE PROTECTION OFFICIALS.

CITY OF TIPP CITY ONE ENGINEERING	# FIRE LINE DETAIL AND NOTES	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 800–11

NOTES

A. THE FIRE LINE SHALL BE DEFINED AS "THE LINE FROM THE RISER INSIDE THE BUILDING TO THE FIRST VALVE ON THE SYSTEM."

B. MINIMUM FIRE LINE SIZE SHALL BE 6 INCHES.

C. A 1 INCH DOMESTIC TAP CAN BE MADE ON A 6 INCH FIRE LINE AND A 2 INCH DOMESTIC TAP ON AN 8 INCH FIRE LINE. TAP MUST BE MADE PRIOR TO BACKFLOW PREVENTOR.

D. A FIRE HYDRANT SHALL BE INSTALLED WITHIN 100 FEET OF THE STORTZ CONNECTION.

E. FIRE LINE CHARGES SHALL BE BASED ON SIZE OF RISER.

F. CONTRACTOR SHALL INSTALL A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR ON FIRE LINE PRIOR TO RISER.

G. LIMITED AREA SPRINKLERS SHALL BE CONNECTED BEFORE METER.

H. DOMESTIC SERVICE SHALL INCLUDE BACKFLOW PREVENTOR ASSE 1013 PRIOR TO METER. WATER METER MAY HAVE BYPASS AND STRAINER.

I. ALL MATERIAL AND CONSTRUCTION METHODS SHALL CONFORM TO CITY STANDARDS.

J. PRIVATE WATER MAIN SHALL REMAIN PRIVATE UNLESS ACCEPTED BY THE CITY AND AN EASEMENT IS GRANTED.

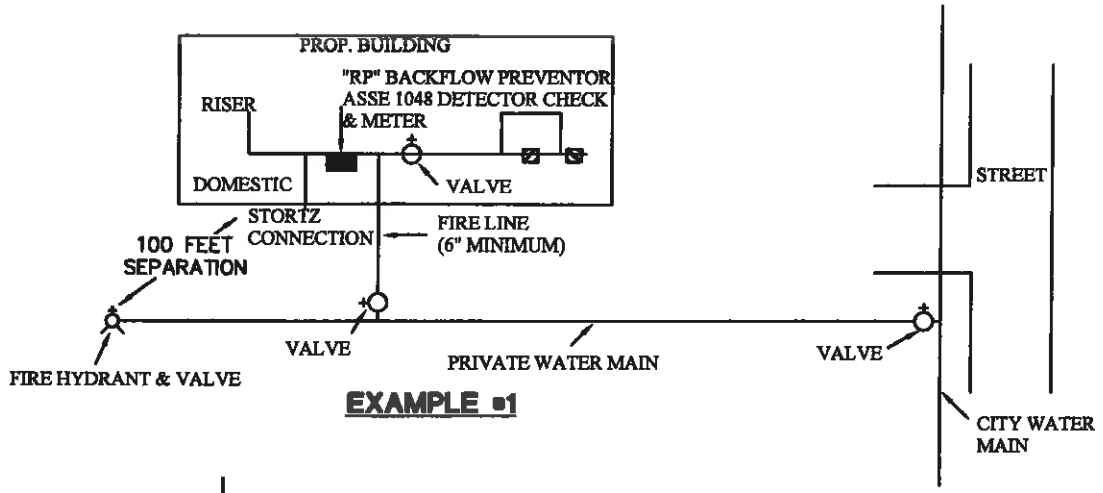
K. ALL FIRE LINES SHALL BE TESTED AT 200 PSI. SEE HYDROSTATIC TEST ON PAGE 800-5 FOR ADDITIONAL REQUIREMENTS. FIRE DEPARTMENT OR THE CITY WATER DEPARTMENT TO WITNESS TEST.

L. FIRE SYSTEM DOUBLE CHECK SHALL BE TESTED AT INSTALLATION & EVERY 12 MONTHS, UNLESS FIRE CODE REQUIRES MORE.

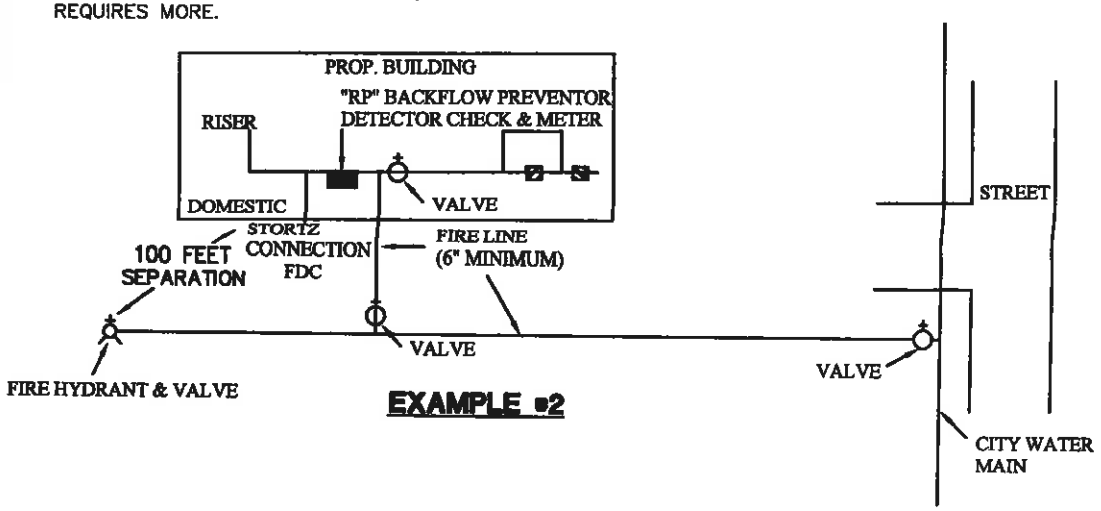
TESTING PROCEDURES FOR EXAMPLE #1

A. FIRE LINE SHALL BE INSTALLED, INSPECTED AND CERTIFIED BY A STATE LICENSED FIRE LINE INSTALLER.

B. PRIVATE WATER MAIN CAN BE INSTALLED BY THE GENERAL CONTRACTOR AND MUST BE INSPECTED BY THE CITY. CONTRACTOR SHALL PRESSURE TEST MAIN AND OBSERVED BY THE CITY. CITY SHALL PERFORM DISINFECTION AND BACTERIA TEST ON BOTH THE FIRE LINE AND PRIVATE WATER MAIN AFTER PRESSURE TEST HAVE BEEN PERFORMED AND APPROVED.



EXAMPLE #1



EXAMPLE #2

TESTING PROCEDURES FOR EXAMPLE #2

A. ENTIRE WATER LINE SHALL BE CONSIDERED THE FIRE LINE PER THE DEFINITIONS.

B. THE ENTIRE FIRE LINE SHALL BE INSTALLED, INSPECTED AND CERTIFIED BY A STATE LICENSED FIRE LINE INSTALLER.

C. SEE PAGE 800-5.

CITY OF TIPP CITY

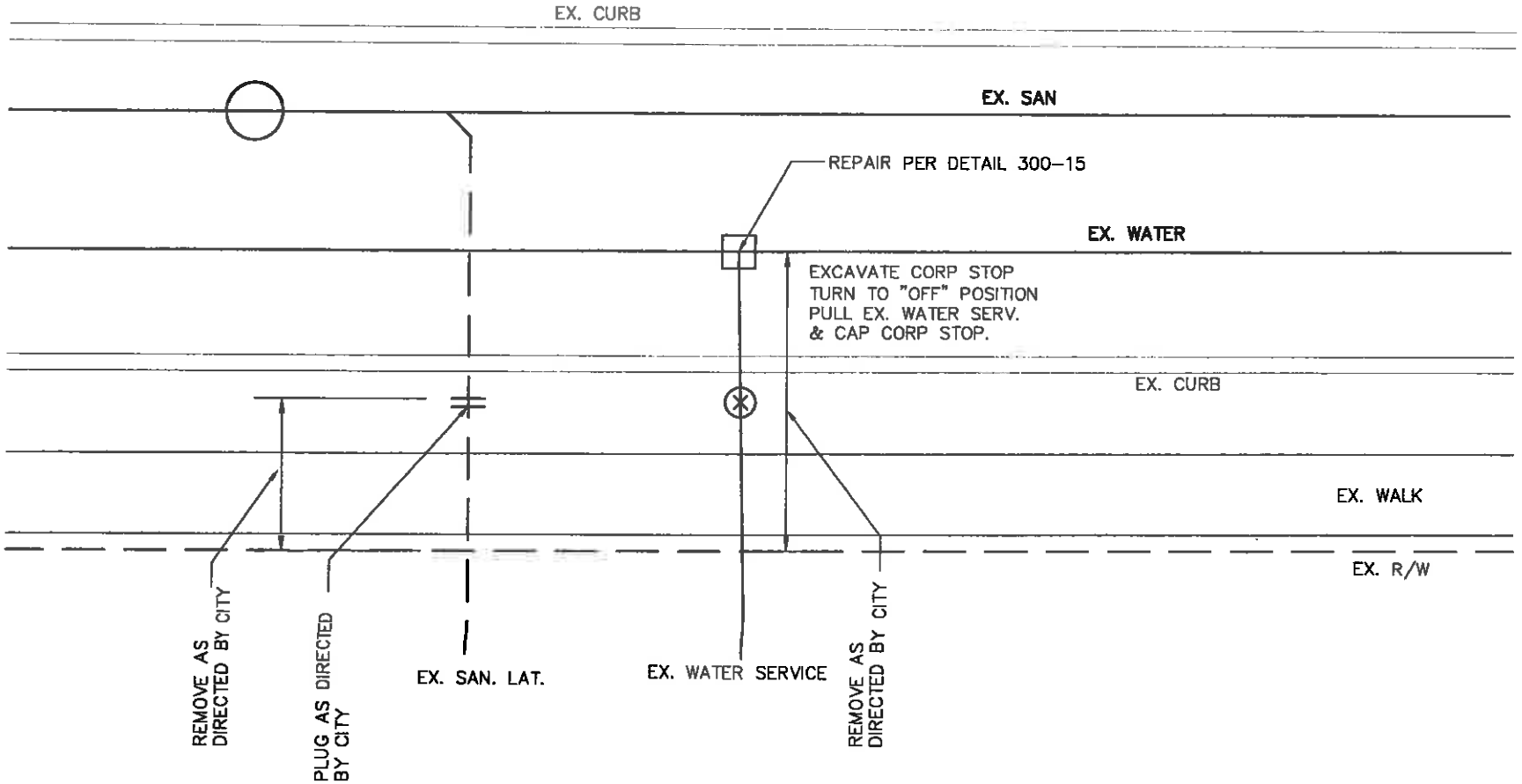
CIRCLE ONE ENGINEERING

FIRE LINE DETAIL AND NOTES

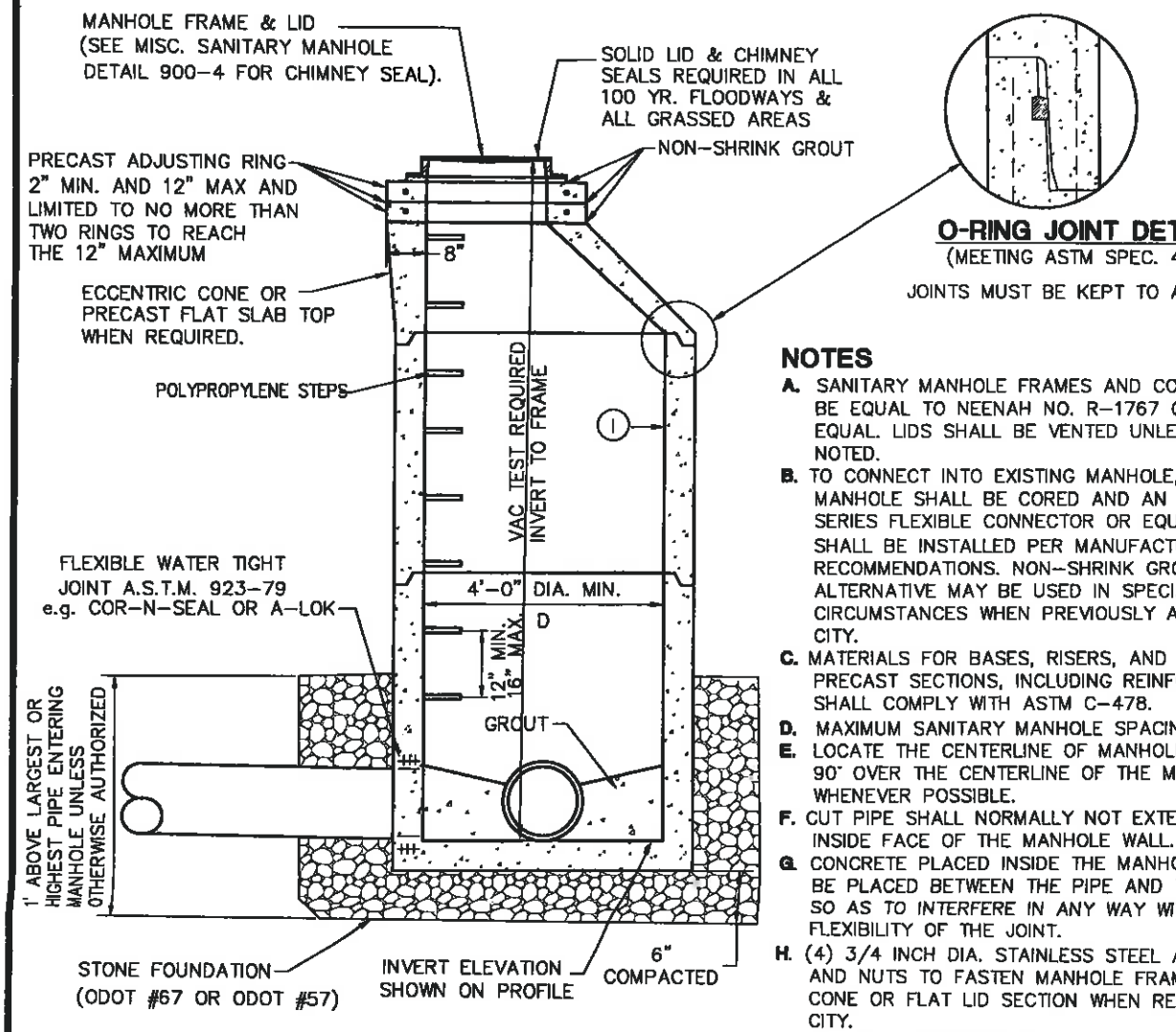
REVISIONS:

DATE APPROVED: MAR 2015

PAGE No. 800-12



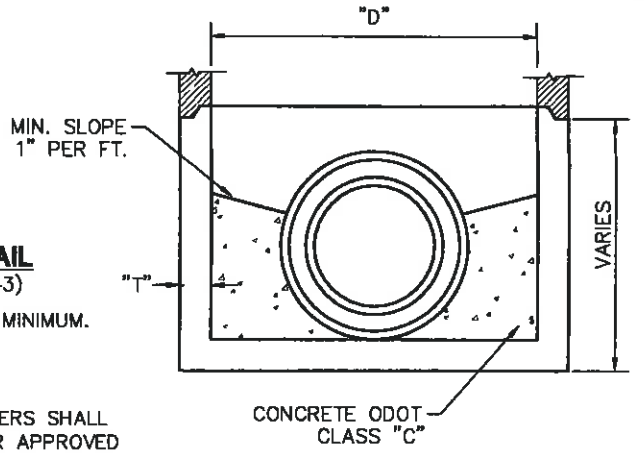
CITY OF TIPP CITY ONE ENGINEERING	**EXISTING SERVICE ABANDONMENT**	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 800-13



O-RING JOINT DETAIL

(MEETING ASTM SPEC. 443)

JOINTS MUST BE KEPT TO A MINIMUM.



PRECAST BASE SECTION

PIPE SIZE	T	D
24" & UNDER	5"	48"
27" & ABOVE	6"	60"

NOTES

A. SANITARY MANHOLE FRAMES AND COVERS SHALL BE EQUAL TO NEENAH NO. R-1767 OR APPROVED EQUAL. LIDS SHALL BE VENTED UNLESS OTHERWISE NOTED.

B. TO CONNECT INTO EXISTING MANHOLE, THE MANHOLE SHALL BE CORED AND AN COR-N-SEAL SERIES FLEXIBLE CONNECTOR OR EQUIVALENT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. NON-SHRINK GROUT ALTERNATIVE MAY BE USED IN SPECIAL CIRCUMSTANCES WHEN PREVIOUSLY APPROVED BY CITY.

C. MATERIALS FOR BASES, RISERS, AND OTHER PRECAST SECTIONS, INCLUDING REINFORCEMENTS SHALL COMPLY WITH ASTM C-478.

D. MAXIMUM SANITARY MANHOLE SPACING SHALL BE 300'.

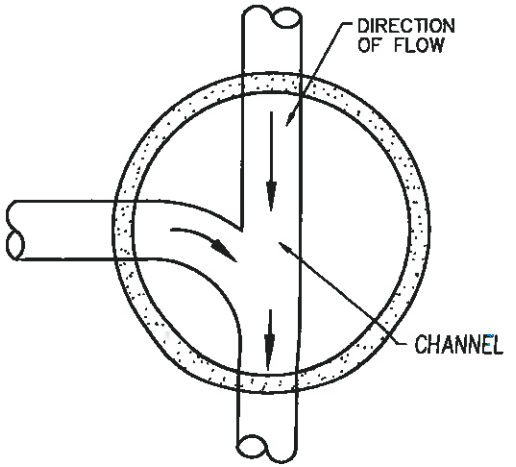
E. LOCATE THE CENTERLINE OF MANHOLE COVERS AT 90° OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

F. CUT PIPE SHALL NORMALLY NOT EXTEND BEYOND THE INSIDE FACE OF THE MANHOLE WALL.

G. CONCRETE PLACED INSIDE THE MANHOLE SHALL NOT BE PLACED BETWEEN THE PIPE AND THE OPENING SO AS TO INTERFERE IN ANY WAY WITH THE FLEXIBILITY OF THE JOINT.

H. (4) 3/4 INCH DIA. STAINLESS STEEL ANCHOR BOLTS AND NUTS TO FASTEN MANHOLE FRAME TO MANHOLE CONE OR FLAT LID SECTION WHEN REQUIRED BY THE CITY.

I. CITY WILL DETERMINE IF SANITARY MANHOLE PROTECTIVE LINING IS REQUIRED DUE TO EXISTING NOXIOUS INFLUENT/EFFLUENT CONDITIONS.



THE FLOW CHANNEL THROUGH MANHOLES SHALL BE MADE TO CONFORM IN SHAPE, SLOPE AND SMOOTHNESS TO THAT OF THE SEWERS.

STANDARD INVERT CHANNEL

ALL INVERTS TO BE CHANNELED FOR OPTIMUM FLOW.

CITY OF TIPP CITY

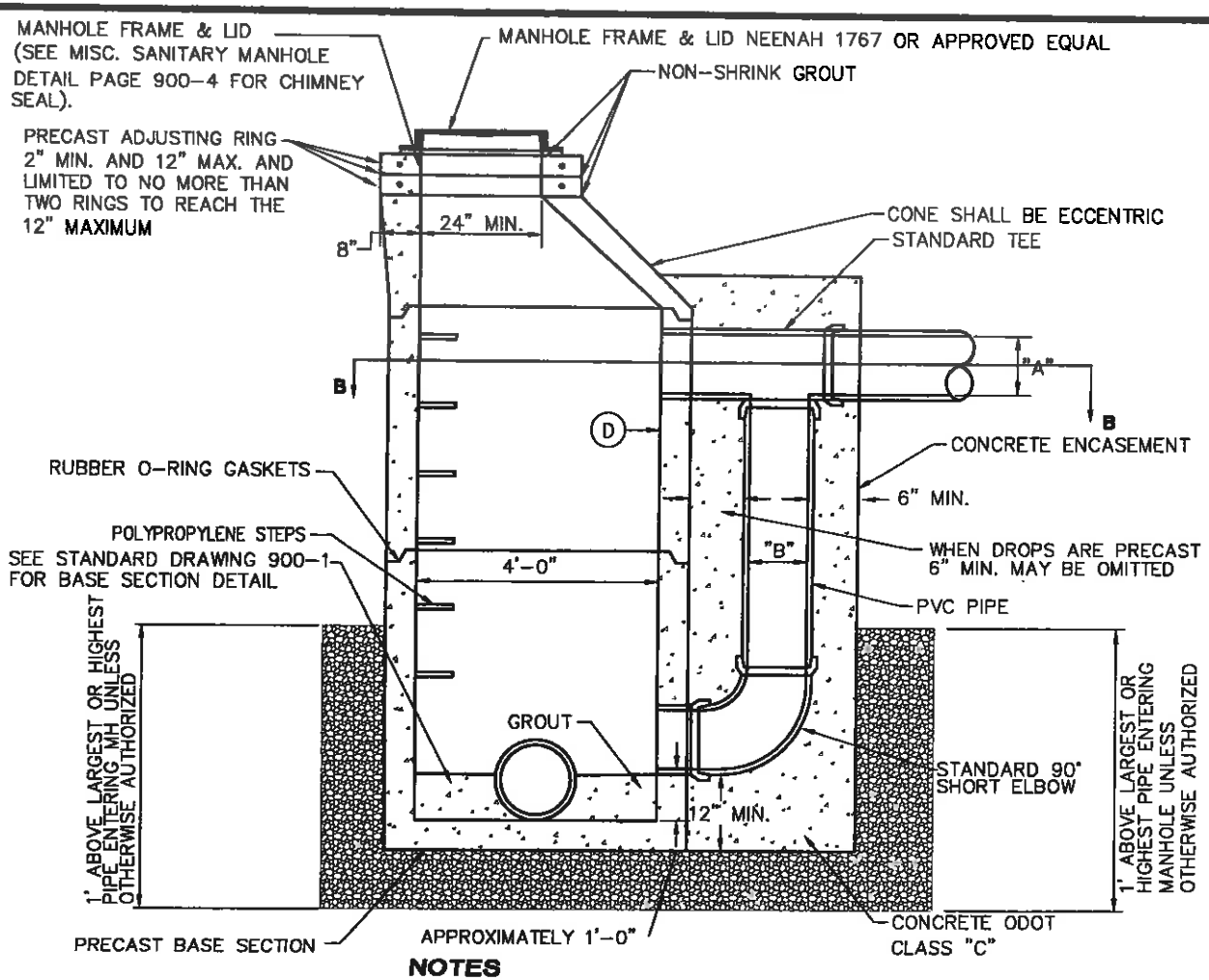
CHANGE ONE ENGINEERING

TYPE 3 SANITARY MANHOLE

REVISIONS:

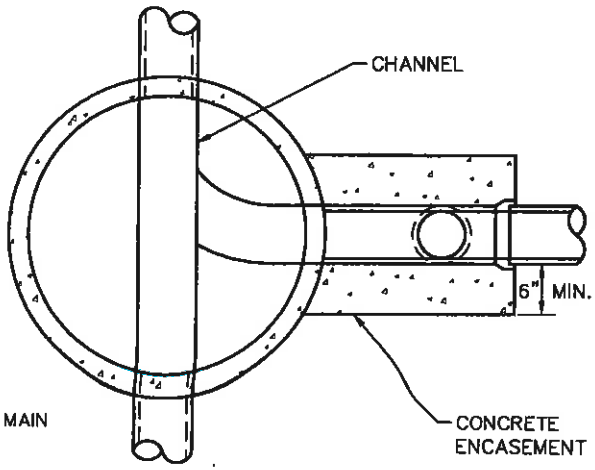
DATE APPROVED: MAR. 2015

PAGE No. 900-1



"A"	"B"
8", 10", & 12"	8"
15" & 18"	10"
21" & 24"	12"

DROP CONNECTION MANHOLE



SECTION B-B

NOTES

A. LOCATE THE CENTERLINE OF MANHOLE COVERS AT 90° OVER THE CENTERLINE OF THE MAIN SEWER WHENEVER POSSIBLE.

B. TYPE D MANHOLE SHALL BE USED WHERE THE DIFFERENCE IN INVERT ELEVATIONS IS GREATER THAN 2'.

C. ALL NOTES AND ASTM REFERENCES ON THE TYPE 3 SANITARY MANHOLE SHALL APPLY ON THE TYPE D SANITARY DROP MANHOLE.

D. CITY WILL DETERMINE IF SANITARY MANHOLE PROTECTIVE LINING IS REQUIRED DUE TO EXISTING NOXIOUS INFLUENT/EFFLUENT CONDITIONS.

CITY OF TIPP CITY

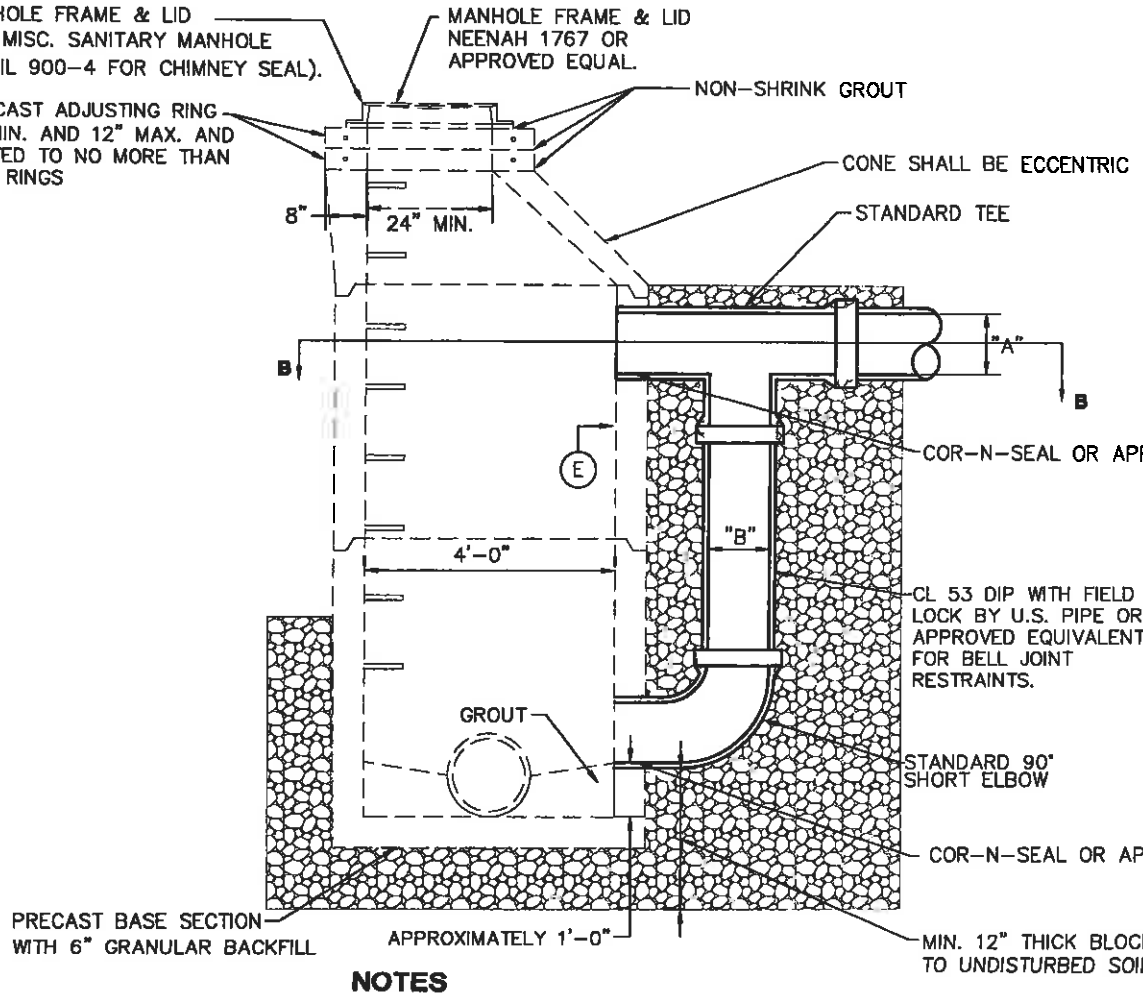
CHOICE ONE ENGINEERING

TYPE D SANITARY DROP MANHOLE

REVISIONS:

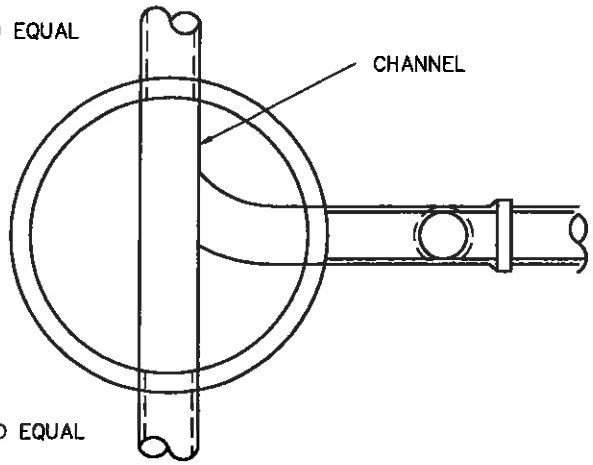
DATE APPROVED: MAR. 2015

PAGE No. 900-2



"A"	"B"
8", 10", & 12"	8"
15" & 18"	10"
21" & 24"	12"

DROP CONNECTION MANHOLE



SECTION B-B

NOTES

A. SANITARY DROP MANHOLE SHALL BE USED WHERE THE DIFFERENCE IN INVERT ELEVATIONS IS GREATER THAN 2 FEET.

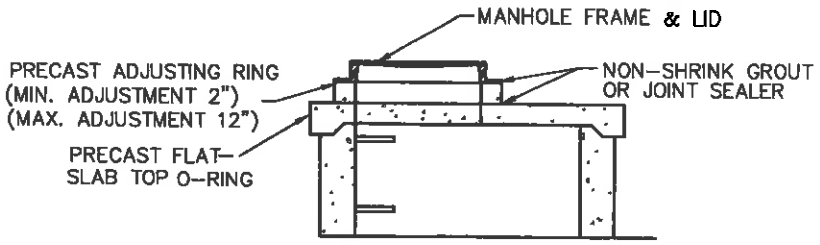
B. ALL NOTES AND ASTM REFERENCES ON THE TYPE 3 SANITARY MANHOLE SHALL APPLY ON THE SANITARY DROP ON EXISTING MANHOLE.

C. ALL NOTES AND ASTM REFERENCES ON THE TYPE D SANITARY DROP MANHOLE SHALL APPLY ON THE SANITARY DROP ON EXISTING MANHOLE.

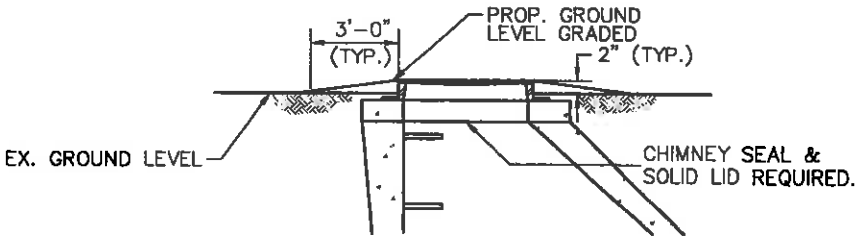
D. THE DROP PIPE SHALL BE ANCHORED TO THE OUTSIDE OF THE EXISTING MANHOLE. 3/4 INCH STAINLESS STEEL STRAPPING WITH 24 INCHES ON CENTER WITH STAINLESS ANCHORING.

E. CITY WILL DETERMINE IF SANITARY MANHOLE PROTECTIVE LINING IS REQUIRED DUE TO EXISTING NOXIOUS INFLUENT/EFFLUENT CONDITIONS.

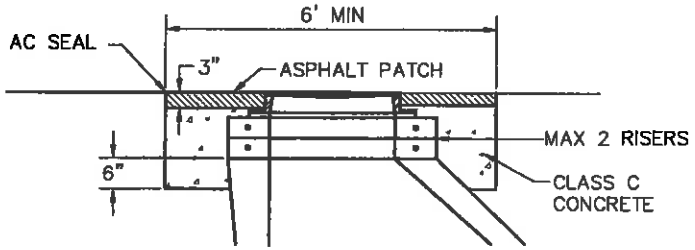
CITY OF TIPP CITY	SANITARY DROP ON EXISTING MANHOLE	REVISIONS:	DATE APPROVED: MAR 2015
CHANGE ONE ENGINEERING			PAGE No. 900-3



FLAT TOP SLAB



TYPICAL OFF STREET MANHOLE GRADING



MANHOLE REPAIR CASTING CONSTRUCTION

NOTES

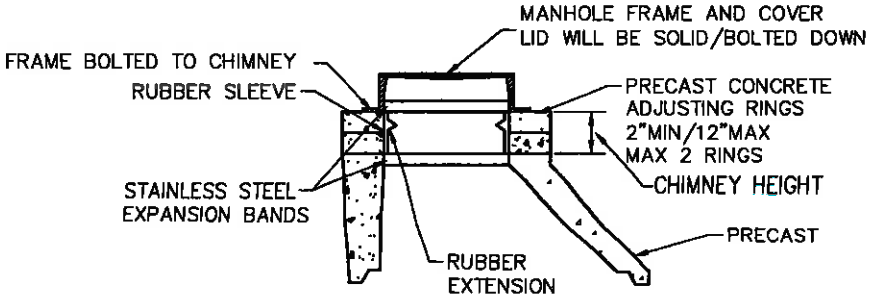
1. PRECAST CONCRETE ADJUSTING RINGS- ENCASE WITH CONCRETE 6 INCHES DOWN FROM BARRELL TOP AND UP TO WITHIN 3 INCHES OF SURFACE AND EXTENSIONS. METAL ADJUSTING RINGS WILL NOT BE ALLOWED.

2. SET MANHOLE, PRECAST CONCRETE ADJUSTING RINGS AND CASTING AND PAVE OVER MANHOLE. THEN DIG OUT, ENCASE COLLARS AND CASTING AS PER DETAIL WITH CONCRETE TO WITHIN 3 INCHES OF SURFACE. THE MANHOLE WILL HAVE A PATCHED RADIUS OF (3 INCH) ASPHALT.

NOTES

A. MANHOLE STEPS SHALL BE SECURLY INSTALLED INTO EACH MANHOLE SECTION, BY THE MANUFACTURER, PRIOR TO DELIVERY TO THE JOB SITE.

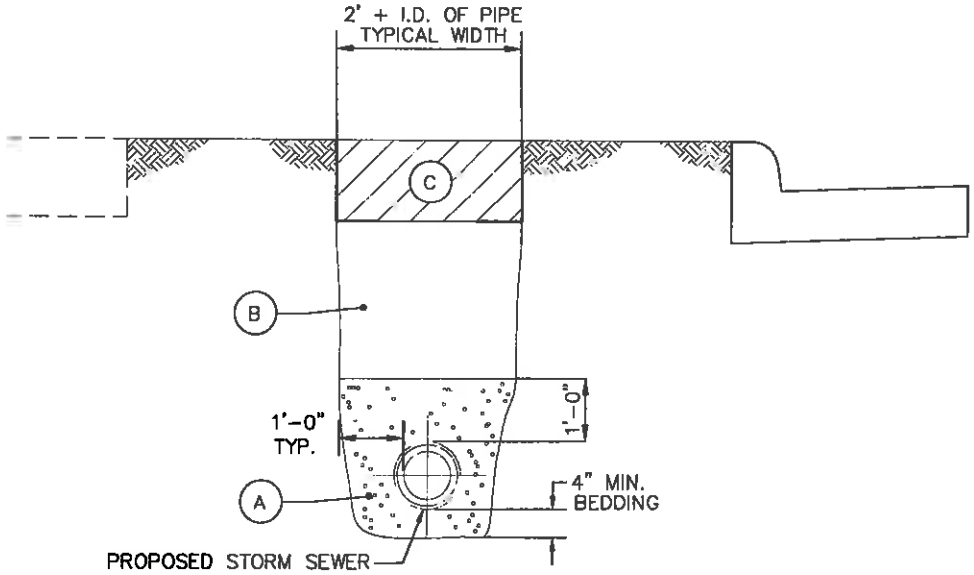
B. MANHOLE STEPS SHALL BE PF-1 STEP BY M.A. INDUSTRIES OR EQUVILENT.



INTERNAL MANHOLE CHIMNEY SEAL

(REQUIRED IN ALL 100 YR. FLOODWAYS & ALL GRASSED AREAS)

CITY OF TIPP CITY	MISCELLANEOUS SANITARY MANHOLE DETAILS	REVISIONS:	DATE APPROVED: MAR. 2015
CHOICE ONE ENGINEERING			PAGE No. 900-4



SANITARY SEWER TRENCH DETAIL

SHOWN AS "OFF PAVEMENT" APPLICATION

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE CRUSHED STONE OR GRAVEL, ODOT 603 TYPE 3 (#57 OR #8), OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES OUTSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS CAN BE COMPACTED WITH EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE CITY. NO MATERIAL SHALL BE USED FOR BACK FILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4 INCH DIAMETER.

ALL TRENCHES INSIDE THE RIGHT-OF-WAY FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREAS OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6" MAXIMUM LIFTS.

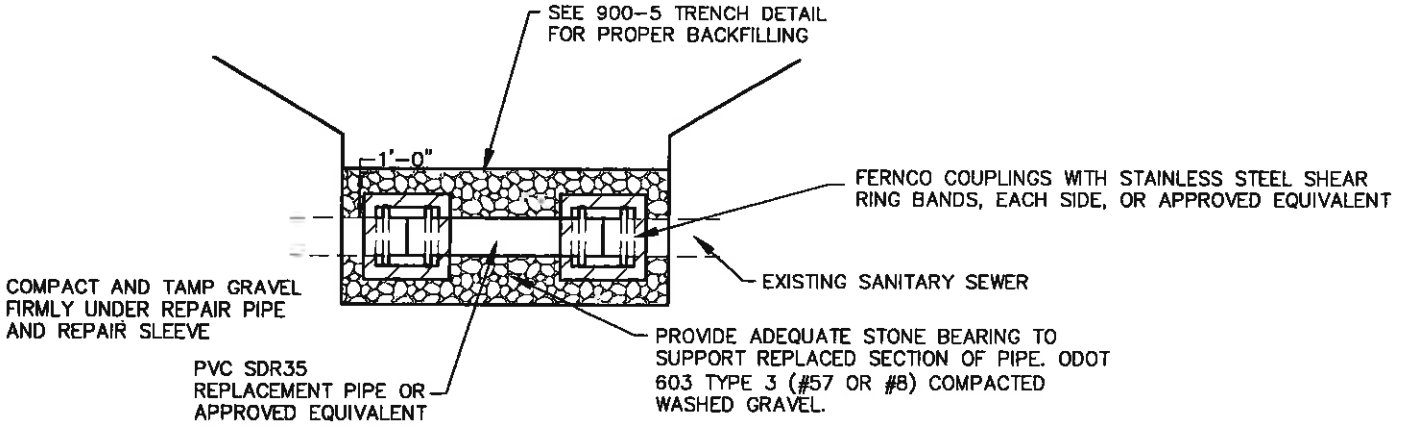
A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAY BE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE CITY.

C. OFF-PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6" OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN-PAVEMENT AREAS SHALL FOLLOW MISCELLANEOUS ROADWAY NOTES SHOWN ON PAGE 300-15.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.

CITY OF TIPP CITY CHANCE ONE ENGINEERING	SANITARY SEWER TRENCH DETAIL	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 900-5



REPAIR OF EXISTING SANITARY SEWER

CITY OF TIPP CITY CHANGE ONE ENGINEERING	REPAIR OF EXISTING SANITARY SEWER PIPE DETAIL	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 900-6

NOTES

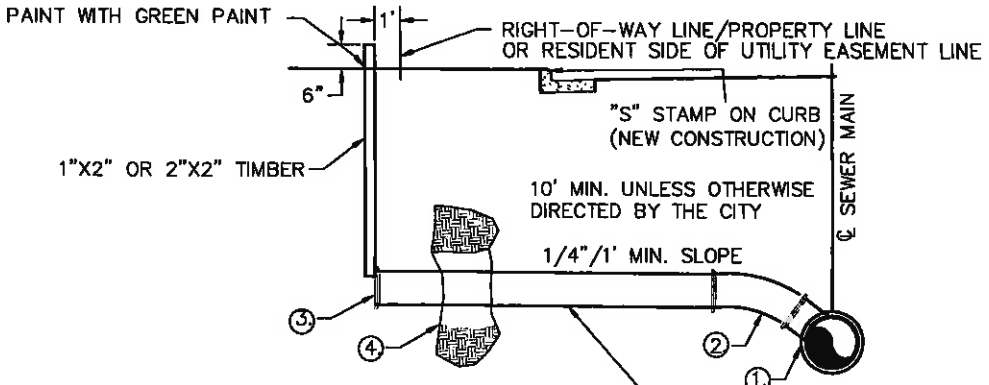
A. RISER PIPE TO BE BEDDED SOLIDLY AGAINST UNDISTURBED GROUND. ALSO, TEE MAY BE SUBSTITUTED FOR WYE BRANCH IF SPECIFIED.

B. RISER PIPE TO BE INSTALLED SO THAT CONNECTING SERVICE SHALL HAVE A MINIMUM DEPTH OF 10 FEET AT THE PROPERTY LINE UNLESS OTHERWISE DIRECTED BY THE CITY.

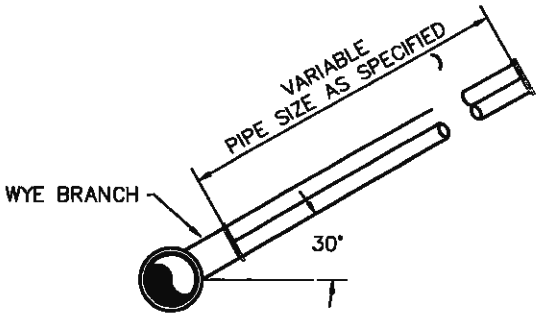
C. CONCRETE ENCASEMENT AND BLOCKING REQUIRED IF DEPTH OF CONNECTION IS 12 FEET OR GREATER.

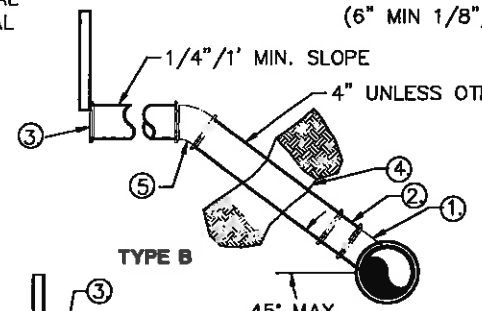
D. EACH SANITARY LATERAL MUST BE IN SEPARATE TRENCHES.

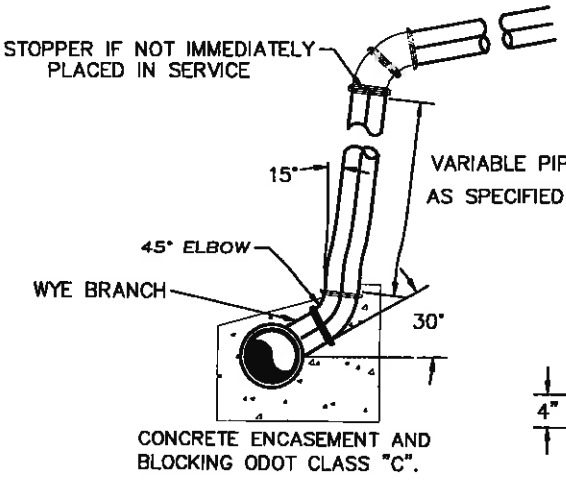
E. ALL LATERALS INSTALLED ON NEW MAIN MUST BE LOW PRESSURE AIR TESTED WITH MAINLINE INSTALLED.

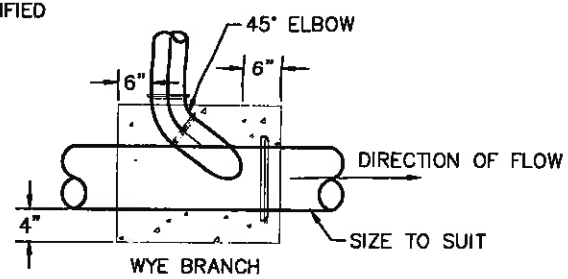


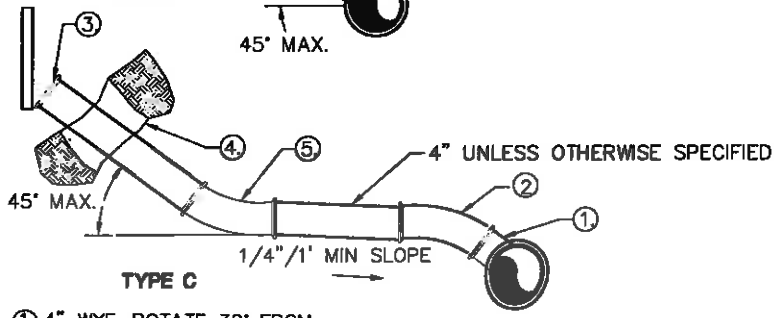
*NOTE = 4" LATERAL FOR TYP. RESIDENTIAL
6" LATERAL FOR TYP COMMERCIAL











1. 4" WYE-ROTATE 30° FROM HORIZONTAL UNLESS OTHERWISE SPECIFIED.
2. 4" 1/8° BEND OR 1/16° BEND AS NEEDED.
3. CAP UNLESS JOINING EXISTING SERVICE LATERAL.
4. BED PIPE WITH 4" GRANULAR MATERIAL AND BACKFILL WITH GRANULAR MATERIAL TO 12" ABOVE PIPE. ODOT 603 TYPE 3 #8 OR #57.
5. EXACT MEASUREMENTS MUST BE PROVIDED SHOWING DISTANCE FROM NEAREST MANHOLE, LENGTH OF LATERAL, BENDS, AND THE END OF LATERAL ELEVATION RELATIVE TO THE BACK OF CURB ELEVATION OR SOME OTHER REFERENCE POINT EASILY RECOVERED.

SERVICE RISER

SERVICE LATERAL

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

SERVICE RISER AND SERVICE LATERAL FOR NEW CONSTRUCTION ONLY

REVISIONS:

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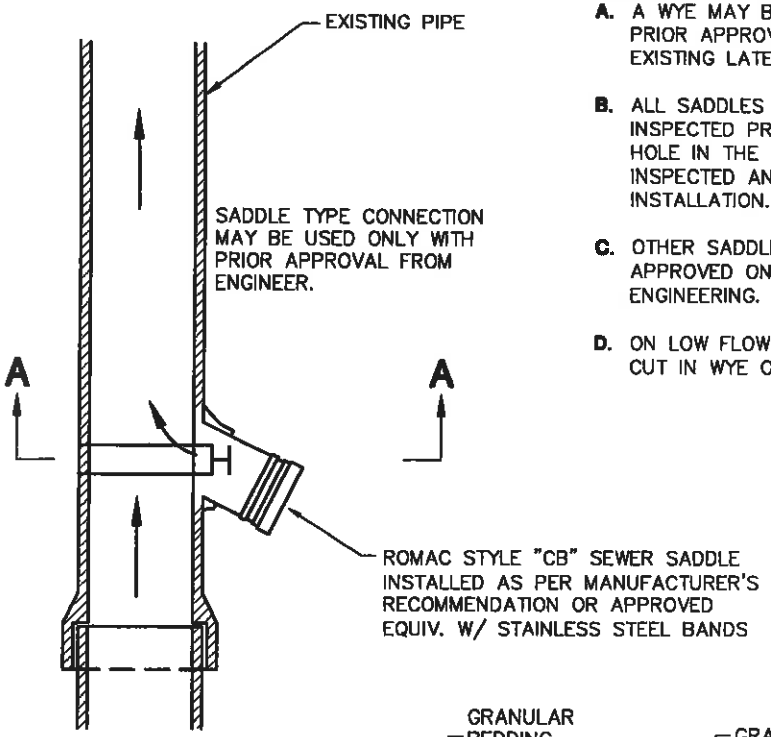
NOTES

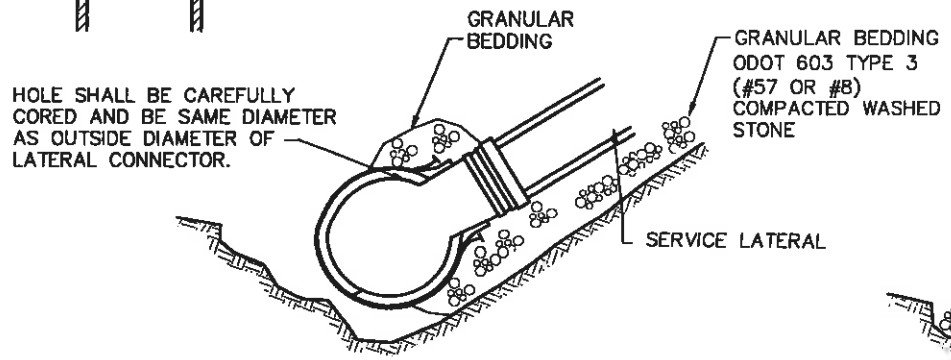
A. A WYE MAY BE CUT IN OR SADDLE WITH PRIOR APPROVAL PLACED ONLY IF AN EXISTING LATERAL IS NOT PROVIDED.

B. ALL SADDLES AND CUTTING IN WYES MUST BE INSPECTED PRIOR TO COVERING, AND THE HOLE IN THE EXISTING PIPE SHALL BE INSPECTED AND APPROVED PRIOR TO INSTALLATION.

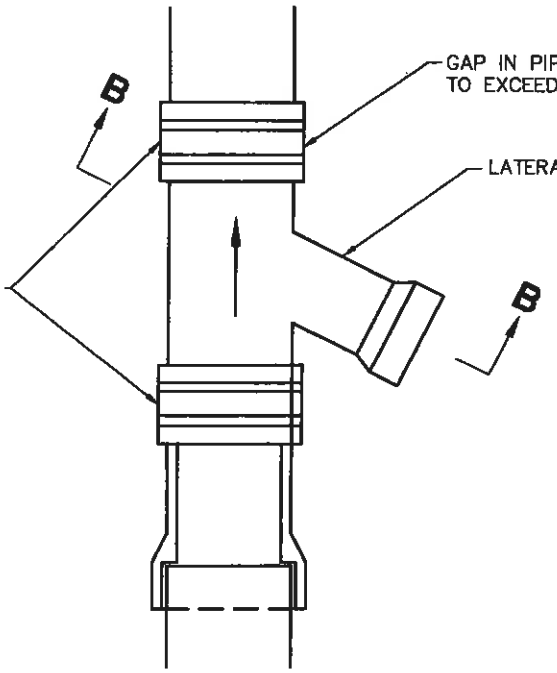
C. OTHER SADDLE TYPES THAT MAY BE APPROVED ON CASE-BY-CASE BASIS BY ENGINEERING.

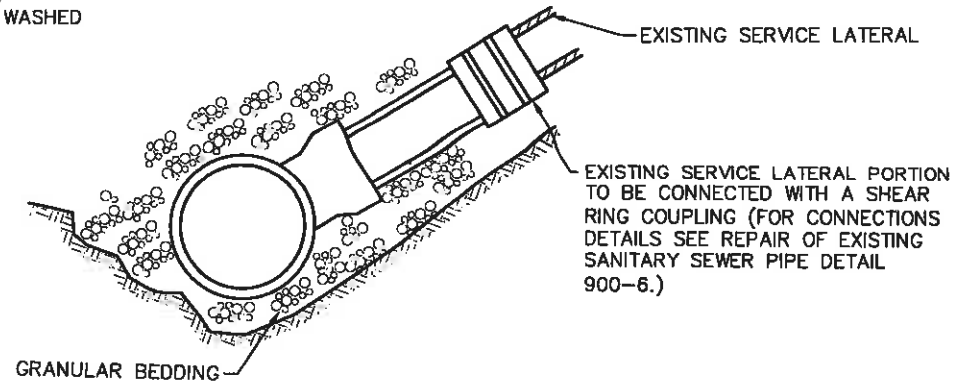
D. ON LOW FLOW AND PVC PIPE SDR 35 USE CUT IN WYE ONLY.





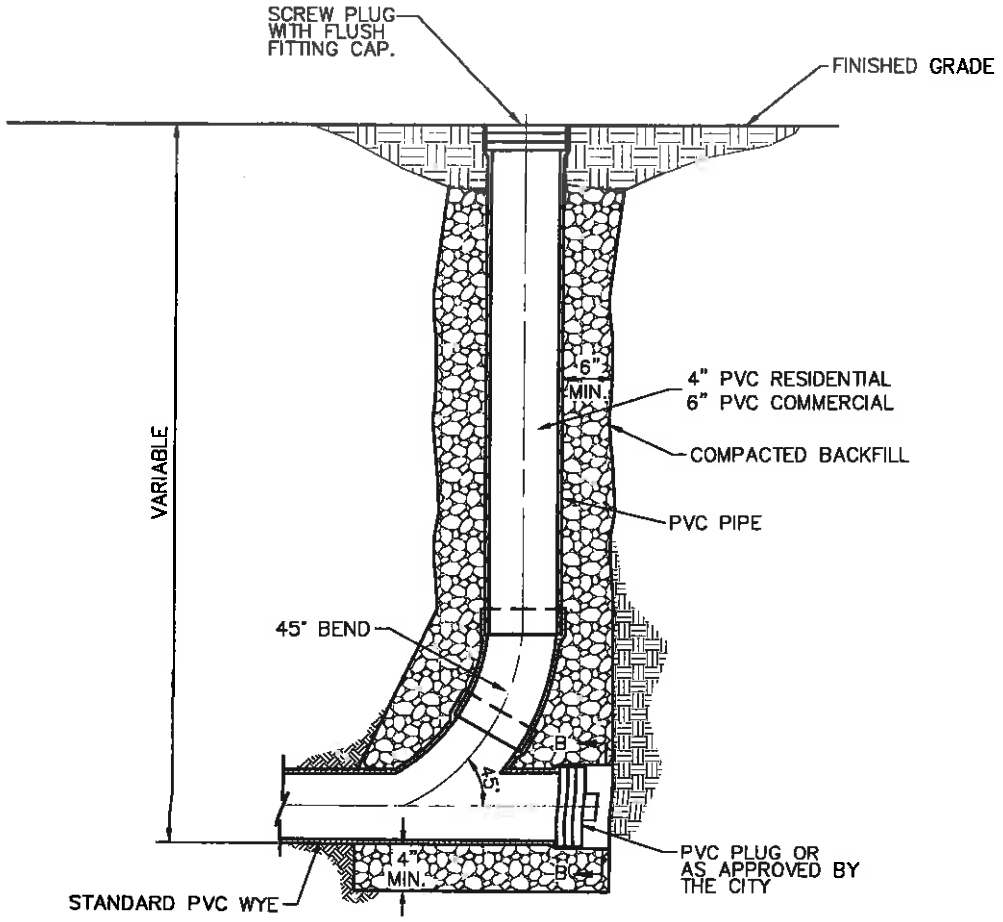
SECTION A-A





SECTION B-B

CITY OF TIPP CITY	SANITARY SEWER SADDLE DETAILS	REVISIONS:	DATE APPROVED: MAR 2015
CHANCE ONE ENGINEERING			PAGE No. 900-8



CLEANOUT DETAIL

AT SANITARY LATERALS ONLY

CITY OF TIPP CITY CHOICE ONE ENGINEERING	SANITARY SEWER CLEANOUT DETAIL	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 900-9

LOW PRESSURE AIR TEST

A. AFTER BACKFILLING, THE AIR TEST SHALL BE CONDUCTED BETWEEN TWO CONSECUTIVE MANHOLES. ALL PIPE OUTLETS MUST BE PLUGGED IN THE SECTION BEING TESTED WITH SUITABLE TEST PLUGS. ONE OF THE PLUGS USED AT A MANHOLE MUST BE TAPPED AND EQUIPPED FOR AN AIR INLET CONNECTION FOR FILLING THE LINE FROM THE AIR COMPRESSOR. AIR SHALL BE SUPPLIED SLOWLY TO THE TEST SECTION UNTIL THE INTERNAL PRESSURE REACHES APPROXIMATELY 4 PSI. IF THE PIPE IS BELOW EXISTING GROUNDWATER LEVEL, THE INTERNAL PRESSURE SHALL BE INCREASED BY THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE, BUT IN NO CASE SHOULD THE INTERNAL PRESSURE EVER EXCEED 5 PSI.

B. AT LEAST 2 MINUTES SHALL BE ALLOWED FOR THE AIR PRESSURE TO STABILIZE. WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE 3.5 PSI, THE AIR SUPPLY SHALL BE DISCONNECTED AND TIMING SHALL BEGIN WITH A STOP WATCH. THE STOP WATCH SHALL BE ALLOWED TO RUN UNTIL THE PRESSURE HAS DROPPED 1.0 PSI. IF THE TIME SHOWN ON THE STOP WATCH IS GREATER THAN THE SPECIFIED MINIMUM TIME, THE SECTION SHALL BE CONSIDERED TO HAVE PASSED THE TEST. TIME MAY BE INTERPOLATED FROM THE FIGURES LISTED BELOW.

PIPE DIA. (IN.)	Time for Longer Length (sec)	Specified Minimum for Length (L) Shown (min:sec)						
		100 FT.	150 FT.	200 FT.	250 FT.	300 FT.	350 FT.	400 FT.
4	0.380L	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	0.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42
8	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08
10	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49
12	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47
15	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36
18	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16
21	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48
24	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10

SPECIFICATION TIME FOR LENGTH (L) SHOWN (MIN:SEC)

DEFLECTION TEST

A. DEFLECTION TESTS SHALL BE PERFORMED BY THE CONTRACTOR ON ALL FLEXIBLE PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS TO PERMIT STABILIZATION OF THE SOIL–PIPE SYSTEM. A SECOND TEST IS REQUIRED 1 YEAR AFTER PLACEMENT.

B. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF DEFLECTION EXCEEDS 5%, REPLACEMENT OR CORRECTION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE REQUIREMENTS OF APPROVING AGENCY.

C. THE MANDREL USED FOR THE DEFLECTION TEST SHALL HAVE A DIAMETER NOT LESS THAN 95% OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE DEPENDING ON WHICH IS MANUFACTURED. THE PIPE SHALL BE MEASURED IN COMPLIANCE WITH ASTM D–2122 STANDARD TEST METHOD OF DETERMINING DIMENSIONS OF THERMOPLASTIC PIPE AND FITTINGS. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.

	DIAMETER, INCHES		
DEPTH (FT.)	48	60	72
	TIME, SECONDS		
8 OR LESS	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

MINIMUM TEST TIMES FOR VARIOUS MANHOLE DIAMETERS

MANHOLE VACUUM TEST

ALL SANITARY SEWER MANHOLES SHALL BE VACUUM TESTED BY THE CONTRACTOR USING THE FOLLOWING PROCEDURES FROM ASTM C–1244.

A. PREPARATION OF THE MANHOLE

1. ALL LIFT HOLES SHALL BE PLUGGED.

2. ALL PIPES ENTERING THE MANHOLE SHALL BE TEMPORARILY PLUGGED TAKING CARE TO SECURELY BRACE THE PIPES AND PLUGS TO PREVENT THEM FROM BEING DRAWN INTO THE MANHOLE.

B. PROCEDURE

1. THE FIRST HEAD SHALL BE PLACED AT THE TOP OF THE MANHOLE IN THE CASTING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. A VACUUM OF 10 INCHES OF MERCURY (4.9 PSI) SHALL BE DRAWN ON THE MANHOLE, THE VALVE ON THE VACUUM LINE OF THE TEST HEAD CLOSED, AND THE VACUUM PUMP SHUT OFF. THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 INCHES OF MERCURY (4.4 PSI).

3. THE MANHOLE SHALL PASS IF THE TIME FOR THE VACUUM READING TO DROP FROM 10 INCHES OF MERCURY (4.9 PSI) TO 9 INCHES OF MERCURY (4.4 PSI) MEETS OR EXCEEDS THE VALUES INDICATED ON THE TABLE.

4. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE BY AN APPROVED METHOD. THE MANHOLE SHALL THEN BE RETESTED UNTIL A SATISFACTORY TEST IS OBTAINED.

- **ALL TESTS SHALL BE WITNESSED BY A CITY REPRESENTATIVE.**

CITY OF TIPP CITY

CHANCE ONE ENGINEERING

SANITARY SEWER TESTING NOTES

REVISIONS:

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SEWER TELEVISING STANDARDS

A. ALL SEWER TELEVISING CONTRACTORS SHALL BE CERTIFIED BY NASSCO FOR PIPELINE ASSESSMENT AND CERTIFICATION.
B. SANITARY TELEVISING WORK SHALL COMPLY WITH NASSCO STANDARDS.
C. ALL TELEVISING WORK SHALL BE COMPLETED IN COLOR WITH THE PROPER AMOUNT OF ILLUMINATION TO CLEARLY SHOW THE ENTIRE PIPE DIAMETER.
D. THE CAMERA SHALL BE OF THE PAN AND TILT TYPE.
E. THE TELEVISING CONTRACTOR SHALL USE A DVD TO RECORD THE ENTIRE TELEVISING PROCESS.
F. AT THE START OF THE TELEVISING PROCESS, THE DVD SHALL RECORD THE FOLLOWING:
   a. DATE/TIME
   b. OPERATOR & COMPANY NAME
   c. SEWER PROJECT NAME
   d. ADDRESS OR INTERSECTION OF MANHOLE WORKING ON
   e. DIRECTION OF TELEVISING
   f. COUNTER SETTING
   g. MANHOLE NUMBERS IF AVAILABLE
G. THE DVD MUST SHOW THE COUNTER RECORDING THROUGHOUT THE TELEVISING PROCESS.
H. THE DVD SHALL SHOW THE CLOCK POSITION AND DISTANCE FROM THE MANHOLE FOR EACH LATERAL.
I. THE OPERATOR SHALL PAN EACH SEWER JOINT AND NOTE ANY DEFICIENCIES ON THE DVD.
J. THE OPERATOR SHALL PAN AND TILT EACH LATERAL AND SHALL POSITION THE CAMERA TO LOOK UP EACH LATERAL CONNECTION TO SEE FULL CIRCUMFERENCE.
K. AT NO TIME SHALL THE OPERATOR ALLOW THE CAMERA HEAD TO BE SUBMERGED.
L. THE OPERATOR SHALL NOTE ANY DEFICIENCIES ON THE MAIN SCREEN.
M. THE OPERATOR SHALL PROVIDE AN ACCURATE LOG CONSISTING OF THE FOLLOWING:
   a. DIAGRAM OF SEWER FROM MANHOLE TO MANHOLE SHOWING DIRECTION OF FLOW
   b. SHALL NOTATE ALL SEWER LATERALS WITH CLOCK POSITIONS AND DISTANCE FROM MANHOLES
   c. DEFICIENCIES IN THE SEWER PIPE INCLUDING BELLIES
   d. SPECIAL NOTES DESCRIBING AREAS OF CONCERN
   e. ANY DEFICIENCIES NOTED SHALL ACCOMPANY A DIGITAL PHOTO ATTACHED OR INCLUDED IN THE REPORT

SEWER TELEVISING PROCEDURES FOR NEW SEWER CONSTRUCTION

A. THE SANITARY SEWER SHALL BE COMPLETELY CLEAN AND FREE OF DEBRIS USING A HIGH PRESSURE JET RODDER CAPABLE OF SCOURING THE PIPE WALLS.
B. ALL DEBRIS SHALL BE VACUUMED OUT OF THE SEWER MAIN.
C. ONCE CLEANING HAS BEEN COMPLETED, THE CONTRACTOR SHALL RUN CLEAR WATER IN THE NEW SEWER MAIN TO FILL ANY POTENTIAL BELLIES IN THE LINE. THE CONTRACTOR SHALL CALCULATE THE VOLUME GALLON CAPACITY OF THE SEWER MAIN AND SHALL USE THAT MUCH WATER TO FILL POTENTIAL DIPS/BELLIES.
D. THE CONTRACTOR MAY RENT A WATER HYDRANT METER FROM THE CITY TO PERFORM THIS TASK.
E. THE CONTRACTOR SHALL MAKE SURE THAT THERE IS NO FLOW EMANATING UPSTREAM. IF SO, THE CONTRACTOR SHALL STOP THIS FLOW DURING THE TELEVISING PROCESS.
F. THE CONTRACTOR SHALL TELEVISE THE SEWER FOLLOWING THE TELEVISING STANDARDS.

SEWER TELEVISING PROCEDURES FOR SEWER RECONSTRUCTION PROJECTS

A. BEFORE COMMENCEMENT OF THE CLEANING PROCESS, THE TELEVISING CONTRACTOR SHALL NOTIFY ADJACENT AND AFFECTED PROPERTY OWNERS BY GOING DOOR TO DOOR AND NOTIFYING THEM OF THE POSSIBILITY OF SEWER BACKUP DURING THE CLEANING PROCESS.
B. THE SANITARY SEWER SHALL BE COMPLETELY CLEAN AND FREE OF DEBRIS USING A HIGH PRESSURE JET RODDER CAPABLE OF SCOURING THE PIPE WALLS.
C. ALL DEBRIS SHALL BE VACUUMED OUT OF THE SEWER MAIN.
D. ONCE CLEANING HAS BEEN COMPLETED, THE CONTRACTOR SHALL BAG THE UPSTREAM MANHOLE AND PUMP THE SEWAGE FLOW DOWNSTREAM AND SHALL MAINTAIN PUMPING DURING THE TELEVISING PROCESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWER FLOODINGS AS A RESULT OF THEIR ACTIVITIES.
E. THE CONTRACTOR MAY RENT A WATER HYDRANT METER FROM THE CITY TO PERFORM THIS TASK.
F. THE CONTRACTOR SHALL TELEVISE THE SEWER FOLLOWING THE TELEVISING STANDARDS.

PASSING SANITARY SEWERS

A. THE CITY WILL NOT PASS OR ACCEPT THE SANITARY SEWER FOR FINAL PAYMENT WITHOUT HAVING A PASSING DVD AND LOG OF THE SANITARY SEWER TELEVISING FOLLOWING THE STANDARDS PREVIOUSLY DESCRIBED.
B. ALL TELEVISING WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.
C. THE CITY RESERVES THE RIGHT TO A FINAL RE-TELEVISING AT THE CONTRACTOR'S EXPENSE IF DEFICIENCIES ARE NOTED ON THE INITIAL TELEVISING WORK AND AFTER THE CONTRACTOR MAKES THE NECESSARY REPAIRS.

NOTES

A. NO WORK SHALL BE APPROVED OR ACCEPTED BY THE CITY UNLESS 2 WORKING DAYS NOTICE OF COMMENCING WORK IS GIVEN TO THE CITY.

B. ALL TEMPORARY PAVEMENT AND SIDEWALK SHALL BE MAINTAINED BY THE CONTRACTOR OR DEVELOPER AT HIS OWN EXPENSE IN A SUITABLE AND SAFE CONDITION FOR TRAFFIC UNTIL PERMANENT REPLACEMENT IS MADE OR THE PROJECT IS FINALLY ACCEPTED BY THE CITY.

C. ROOF DRAINS, FOUNDATION DRAINS, SUMP PUMPS, AND ALL OTHER CLEAR WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

D. WHEN A SEWER IS TO BE EXTENDED AT THE DOWNSTREAM MANHOLE OR FIRST MANHOLE IN THE NEW LINE, IT SHALL BE PLUGGED BEFORE CONSTRUCTION BEGINS. NO PLUGS SHALL BE REMOVED UNTIL CONSTRUCTION IS COMPLETED AND LINE HAS BEEN ACCEPTED BY THE CITY.

E. WHEN A CASTING OR OTHER PUBLIC PROPERTY IS ABANDONED IT REMAINS CITY PROPERTY, UNLESS OTHERWISE DIRECTED.

F. SANITARY SEWERS MUST HAVE OEPA PLAN APPROVAL AND REQUIRED PERMITS FOR ANY SANITARY SEWER THAT IS RELOCATED OR RESIZED.

EXCAVATION AND PIPE LAYING

A. THE LAYING OF THE PIPE SHALL COMMENCE AT THE LOWEST POINT, WITH THE BELL END LAID UPGRADE. THE PIPE SHALL BE CENTERED IN THE TRENCH AND ALL PIPE SHALL BE LAID WITH ENDS ABUTTING AND TRUE TO LINE AND GRADE.

B. LASER SHALL BE USED INSIDE THE PIPE UNLESS OTHERWISE APPROVED.

UTILITY STAKING

A. LASER METHOD – OFFSET AND GRADE AT EACH MANHOLE. OFFSET AND GRADE 50 FEET AND 100 FEET OUT FROM EACH MANHOLE UNLESS OTHERWISE APPROVED.

TESTING - ALL PHASES PERFORMED BY CONTRACTOR OR DEVELOPER

A. BEFORE ANY SEWER LINE IS PLACED INTO SERVICE OR ACCEPTED BY THE CITY, IT SHALL BE SUBJECTED TO AND PASS LOW PRESSURE AIR TEST. EACH RUN BETWEEN MANHOLES, WITH ALL SERVICE LATERALS STUBBED INTO PROPERTY LINES, SHALL BE TESTED BEFORE BEING ACCEPTED. THE CONTRACTOR OR DEVELOPER SHALL FURNISH ALL EQUIPMENT AND MATERIAL NECESSARY TO CONDUCT THIS TEST. THE TRENCH SHALL BE COMPLETELY BACKFILLED BEFORE TESTING.

B. SEE SANITARY SEWER TESTING NOTES. (PAGE 900–11)

C. BEFORE FINAL ACCEPTANCE BY THE CITY AND BEFORE ANY SERVICE LINE IS PUT INTO USE, ALL SANITARY SEWERS AND MANHOLES SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATTER BY USE OF A SEWER–JET OR EQUAL, BY THE CONTRACTOR.

HOUSE CONNECTIONS

A. NO SERVICE LINE SHALL BE ALLOWED TO CONNECT DIRECTLY INTO A MANHOLE, SUBJECT TO APPROVAL BY THE CITY IN SPECIFIC CASES.

B. THE ENDS OF ALL SERVICE LINES OR TEES SHALL BE ACCURATELY LOCATED, MAPPED, AND GIVEN TO THE CITY WITHIN 15 DAYS AFTER INSTALLATION.

C. BEFORE MAKING A CONNECTION TO AN EXISTING SEWER TAP OR SEWER LATERAL, THE CONTRACTOR SHALL CHECK THE EXISTING PIPE BY UTILIZING A SEWER EEL, STRAP, OR SEWER ROD TO SEE THAT THE EXISTING PIPE IS CONNECTED TO THE MAIN SEWER. IF NEEDED, THE CONTRACTOR MAY NEED TO USE A HYDRAULIC SEWER CLEANER.

D. LATERALS FROM THE MAIN TO THE PROPERTY LINE SHALL BE 4" MINIMUM.

E. A RIGHT–OF–WAY EXCAVATION PERMIT TO OPEN INTO, ALTER, OR DISTURB ANY PUBLIC SEWER MUST BE OBTAINED.

F. IN THE DEMOLITION OF EXISTING BUILDING, ALL ABANDONED SEWER LATERALS SHALL BE CAPPED AT THE OWNER'S EXPENSE AT THE RIGHT OF WAY.

PIPE

A. ALL MAINLINE PIPE AND SPECIALS SHALL BE PVC SDR–35 UNLESS OTHERWISE APPROVED BY THE CITY. MINIMUM DIAMETER OF PIPE SHALL BE 8 INCHES.

B. DUCTILE IRON PIPE CL 53 OR C 900 WILL BE USED IN STREAM CROSSINGS AND WHERE MINIMUM SEPARATION CANNOT BE MAINTAINED.

C. ALL JOINTS SHALL BE OF THE BELL AND SPIGOT TYPE, THE BELLS BEING FORMED INTEGRALLY WITH THE PIPE. THE BELL SHALL CONTAIN A FACTORY INSTALLED ELASTOMETRIC GASKET WHICH IS POSITIVELY RETAINED. NO SOLVENT CEMENT JOINTS WILL BE PERMITTED IN FIELD CONSTRUCTION EXCEPT AS SPECIFICALLY AUTHORIZED BY THE CITY.

FLEXIBLE PIPES	MATERIAL SPECIFICATIONS	JOINT SPECIFICATIONS
POLYVINYL CHLORIDE	ASTM D–3034 (SDR–35) PIPE STIFFNESS = 46PSI	ELASTOMERIC GASKET ASTM D–3212
DUCTILE IRON	ANSI A–21.51 & AWWA C–151	ANSI A–21.11 & AWWA C–111

1. SDR = OUTSIDE DIAMETER DIVIDED BY WALL THICKNESS.

2. THE SPECIFICATIONS ABOVE SHALL BE THOSE MOST RECENTLY ADOPTED BY THE APPROPRIATE STANDARDS SETTING ORGANIZATIONS.

CITY OF TIPP CITY

CHOICE ONE ENGINEERING

MISCELLANEOUS SANITARY SEWER NOTES

REVISIONS:

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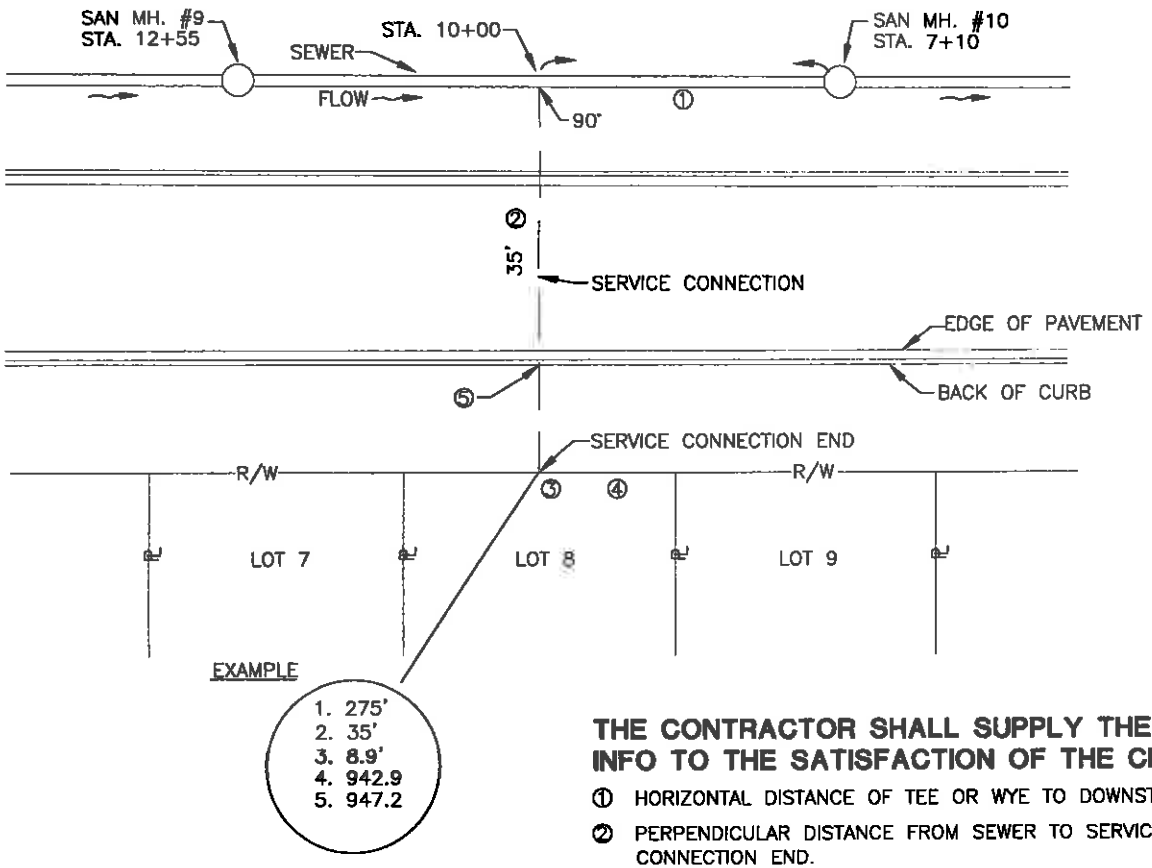


THE CONTRACTOR SHALL SUPPLY THE FOLLOWING INFO TO THE SATISFACTION OF THE CITY

① HORIZONTAL DISTANCE OF TEE OR WYE TO DOWNSTREAM MANHOLE.

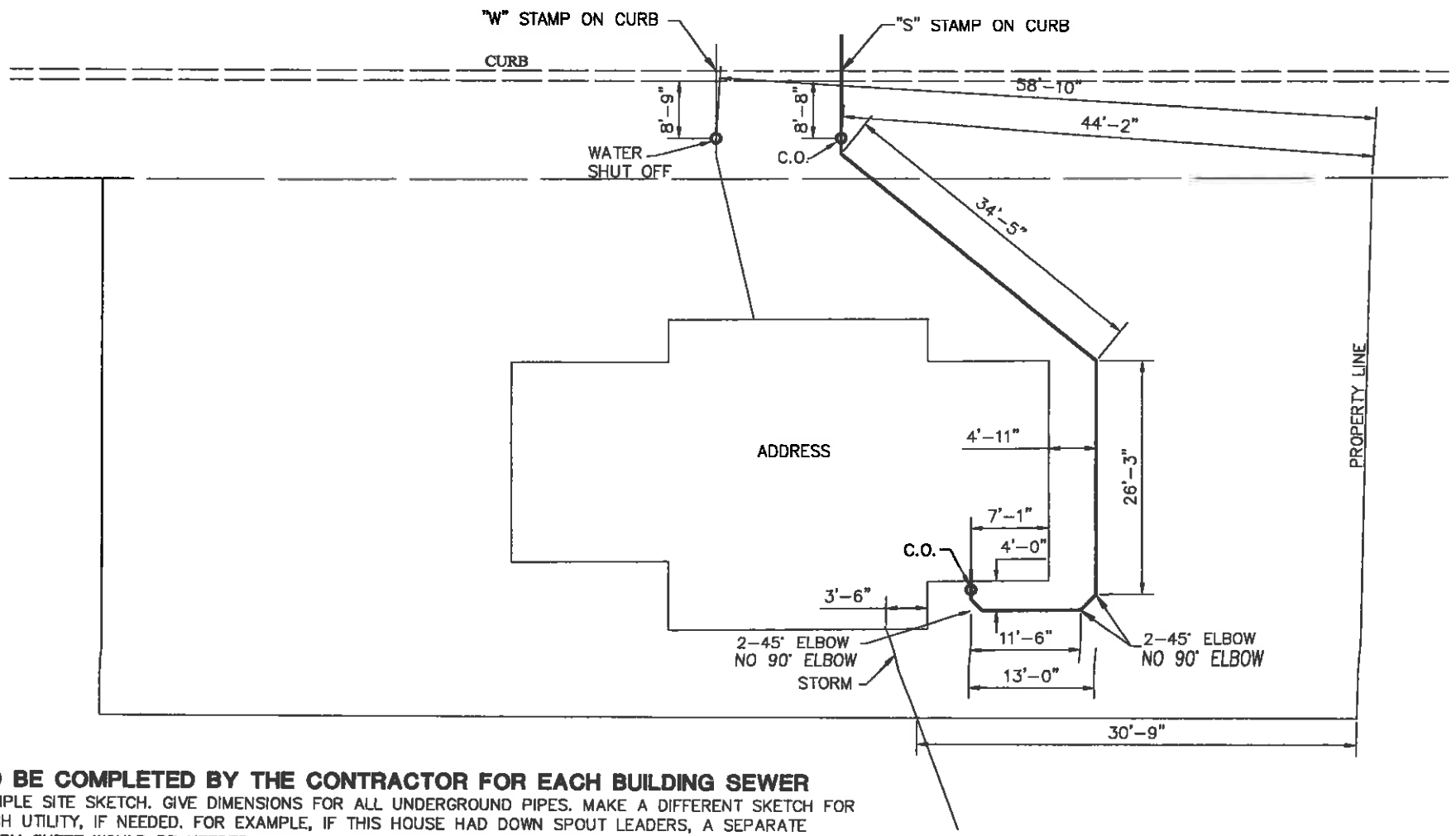
② PERPENDICULAR DISTANCE FROM SEWER TO SERVICE CONNECTION END.

③ DEPTH OF SERVICE CONNECTION END FLOW LINE TO ORIGINAL GROUND.

④ ELEVATION OF SERVICE CONNECTION END FLOW LINE.

⑤ ELEVATION OF BACK OF CURB OR SOME OTHER REFERENCE POINT ABOVE LATERAL.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	# SERVICE CONNECTION LOCATION REFERENCE	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 900–13



TO BE COMPLETED BY THE CONTRACTOR FOR EACH BUILDING SEWER

SAMPLE SITE SKETCH. GIVE DIMENSIONS FOR ALL UNDERGROUND PIPES. MAKE A DIFFERENT SKETCH FOR EACH UTILITY, IF NEEDED. FOR EXAMPLE, IF THIS HOUSE HAD DOWN SPOUT LEADERS, A SEPARATE STORM SHEET WOULD BE NEEDED.

CITY OF TIPP CITY CHOICE ONE ENGINEERING	SERVICE CONNECTION LOCATION REFERENCE (BUILDING IN PLACE)	REVISIONS:	DATE APPROVED: MAR 2015 PAGE No. 900-14

RESOLUTION NO. 29 - 15

BY Mr. Kessler

A RESOLUTION ADOPTING ENGINEERING STANDARD DRAWINGS AND DETAILS FOR THE CITY OF TIPP CITY

WHEREAS, the Council of the City of Tipp City desires to provide safe and high quality public improvements to adequately meet the needs of its citizens; and

WHEREAS, the Council of the City of Tipp City has previously adopted Engineering Design and Construction Standards by motion on October 5, 1987; and

WHEREAS, changes in construction materials, technologies and methods have rendered the existing standards obsolete;

NOW, THEREFORE, THE CITY OF TIPP CITY HEREBY RESOLVES:

SECTION 1. That whenever any public improvements (including roadways, driveways, curbs, sidewalks, storm and sanitary sewers and appurtenances, water lines, etc.) are constructed, repaired or altered in any manner, all such work shall conform in every respect to the standards and specifications adopted by this Resolution.

SECTION 2. That the City of Tipp City Engineering Standard Drawings and Details, dated June 1, 2015 and being on file in the office of the City Engineer, a copy of which is attached hereto and part of this Resolution are hereby approved and confirmed by Council.

SECTION 3. That the City Engineer is hereby authorized and empowered to make future changes, modifications and/or corrections to the Engineering Standard Drawings and Details to allow for changes in technologies, materials and other efficiencies provided that the proposed revisions will be submitted for information to Council no less than 30 days prior to taking effect.

SECTION 4. That the standards adopted on October 5, 1987, as amended, being in conflict with this Resolution are hereby rescinded and repealed.

SECTION 5. That this Resolution shall be in full force and effect from and after the earliest period allowed by law.

PASSED: June 1, 2015 _____ President of Council

ATTEST: _____ Clerk of Council **APPROVED:** _____ Law Director