

ORDINANCE NO. 62-2016

Offered by All of Council

AN ORDINANCE ADOPTING THE VILLAGE ENGINEER'S TECHNICAL STANDARDS PURSUANT TO THE VILLAGE SUBDIVISION REGULATIONS, AND DECLARING AN EMERGENCY

WHEREAS, on February 16, 2016, this Council adopted Ordinance 85-2015 adopting and approving the Village Subdivision Rules and Regulations; and

WHEREAS, Section 7.3 of the Village Subdivision Rules and Regulations provides that the Village Engineer is to submit technical standards to the Planning and Zoning Commission for recommendation to Council; and

WHEREAS, pursuant to Section 7.3. of the Subdivision Rules and Regulations the Village Engineer submitted technical standards to the Planning and Zoning Commission which were reviewed by the Commission and on August 9, 2016, recommended to Council for approval.

NOW, THEREFORE, BE IT ORDAINED by the Council of the Village of Richfield, Summit County, State of Ohio:

- SECTION 1. That the design standards provided by the Village Engineer to the Planning and Zoning Commission and recommended to Council by the Planning and Zoning Commission on August 9, 2016, substantially in accordance with the Village Engineer's Design Standards and Details attached as Exhibit A, are hereby approved.
- SECTION 2. That it is found and determined that all formal actions of this Council concerning and relating to the adoption of this Resolution were adopted in an open meeting of this Council, and that all deliberations of this Council and of any of its committees that resulted in such formal action, were in meetings open to the public, in compliance with legal requirements, including Section 121.22 of the Ohio Revised Code.
- SECTION 3. This Ordinance is declared to be an emergency measure necessity for the immediate preservation of the public peace, health and safety of this Village, and for the further reason that this Ordinance is required to be immediately effective so that the Village Engineer's Design Standards and Details attached as Exhibit A are approved and may be utilized in the Village at the earliest possible time; wherefore, provided this Ordinance receives the affirmative vote of two-thirds of the members of Council elected or appointed, it shall take effect immediately upon its passage and execution by the Mayor; otherwise, it shall take effect and be in force from and after the earliest period allowed by law.

PASSED: 9-16-16

Raymond Sivas
President of Council

Belukio Baslaras
Mayor

Dated: 9/6/16

ATTEST:

Barbara E. Sullivan
Clerk of Council

Village Engineer's Design Standards and Details



To be used in conjunction with the
"Subdivision Rules and Regulations"
Adopted February 2016

2016

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Roadway Requirements

Roadway plans shall be designed based upon the latest edition of the Ohio Department of Transportation Location and Design Manual Volume I and III, American Association of State Highway and Transportation Officials "A Policy on Geometric Design of Highways and Streets", the Ohio Department of Transportation Standard Construction Drawings, the Ohio Department of Transportation Construction and Material Specifications, the Ohio Manual of Traffic Control Devices, the Village of Richfield Subdivision Regulations and The Village of Richfield Standards as noted in the following details.

Horizontal and vertical design, geometric design of intersections, barrier design, pavement design for new and reconstructed roads shall follow the ODOT Location and Design Manual Volume I and AASHTO "A Policy of Geometric Design of Highways and Streets, or as required by the Village.

Drainage Requirements

The construction and design of storm collection facilities shall comply with the Ohio Department of Transportation, Location and Design Manual, Volume II, the Ohio Department of Transportation Standard Construction Drawings, Ohio Department of Transportation Construction and Materials Specifications, and the Summit County Engineer Stormwater Drainage Manual.

Hydrologic Calculations shall be submitted to the City showing the following information; Minimum requirements for drawings and engineering calculations for all drainage systems shall comply with the following:

1. A map showing the existing topography of the development area and adjacent land within a minimum of three hundred (300) feet of its boundary. The topographic map shall use a contour interval appropriate to portray clearly the surface conformation and drainage pattern of the area and of the water shed.
2. A vicinity map at a scale of not less than two thousand (2,000) feet to the inch showing the development area in relation to existing roads, the water shed, and nearest existing thoroughfares, streams, wetlands, and other water areas.
3. The drainage area, not project area, for each pipe or drainage structure shall be outlined, with contours and have the acreage shown. To show the entire drainage area, additional sheets may be required. If additional sheets are needed, existing aerial mapping or USGS mapping with contours clearly depicting the watershed shall be sufficient.
4. Location of any adjacent existing drainage structures. This information shall be based on field investigations and mapping.
5. The acreage of all tributary drainage areas and their sum.
6. Times of concentration, intensity, and runoff coefficients used in the Rational Method to estimate the amount of runoff. The Flow Path used to calculate the time of concentration shall be shown on the drainage map.
7. Discharge in cubic feet per second (cfs), velocities in feet per second (fps) and any additional data needed to establish that the drainage system will convey the flow.
8. The plan and profile of all drainage courses over all sections being affected. See Disclaimer Statement on the title page of these Engineering Standards. 4-1

9. Cross sections along the drainage course at one hundred (100) foot intervals or as directed by the City based on existing or proposed grading.
10. Size and types of all drainage improvements including the detailed standard drawings of each.
11. Computation of downstream structures capacity may also be required as directed by the City.

COMPUTATION OF STORM WATER RUNOFF

Given the type of drainage structure to be designed, the rate of runoff shall be computed using the storm frequencies given below:

<u>Structure Storm</u>	<u>Frequency (Years)</u>
Storm Sewer	10
Open Ditches	10
Culverts	25
Bridges	25

The design frequency to be considered for an individual structure may be altered by the City where the health and safety of the residents would be endangered by the hazards of flood waters or increased flows.

Sanitary Sewer Requirements

1. Pipe Materials
 - a. PVC Plastic Pipe and Fittings: ASTM D3034, ASTM D3212 elastomeric gasket joint (integral bell), push-on type with bell designed to retain the gasket to prevent pull-out.
2. Manholes
 - a. Bases: ASTM C478 precast concrete sections. Base riser section with integral floor. Provide ASTM C923 resilient connectors for connecting pipes to manholes
 - b. Walls: ASTM C478 vertical precast sections with ASTM C443 rubber gasket joints and Federal Specification SS-S-210A and AASHTO M-198B flexible plastic gasket material on the outside should of the joints. Installation of flexible gasket material shall not interfere with proper seal of the rubber gaskets.
 - c. Tops: ASTM C478 eccentric cone top section narrowing down to I.D. of not less than 24" and O.D. not less than that of the grade rings except for flat slab tops. Flat slab tops to be designed to withstand H-20 traffic loading. Provide grade rings for a minimum height of 4" and a maximum height of 15" as required to set castings at the proper elevation, ring I.D. equal to the top section access opening and O.D. not less than the O.D. of the casting frame. Top section and grade rings to have four 1" diameter holes located to match holes in the casting. Holes in top section shall extend at least 6" into the concrete. Holes shall not be made in the field.
 - d. Steps: ASTM C478 copolymer polypropylene plastic encapsulated ½" Grade 60 steel reinforcing rod, notched tread ridge and retainer lugs on each side of tread ridge, steel

rod continuous through the entire length of the legs and tread. Steps of the press fit type driven into the concrete wall shall have a pullout resistance of at least 1500 pounds per leg, as evidenced by test date.

- e. Frames and Covers: ASTM A48, Class 30B heavy duty gray iron with a minimum total weight of 375 pounds, machined bearing surfaces, frame with 4 equally spaced anchor bolt holes in the base flange, 24" clean opening and 7" height, cover with strengthening ribs on the underside and words "Sanitary Sewer" cast into top. The cover shall have a factory installed gasket seal and no open pickholes.
- f. Manhole frames and covers to be EJIW 1040 with Type "A" lid. Manholes in easement areas to have locking covers.

3. Miscellaneous Notes:

- a. Roof Drains, foundation drains and other clean water connections to the sanitary sewer are prohibited.
- b. All Sanitary sewers shall pass the air acceptance test and Mandrel deflection tests prior to acceptance by the Village of Richfield.
- c. All sanitary sewer shall be color filmed by the contractor and found to be free of defects and foreign matter and in proper alignment prior to formal acceptance by the Village of Richfield.
- d. All sanitary sewer laterals shall be laid at no less than 1% slope.
- e. All rough grading (within 6" of finished grade) shall be completed within the right of way prior to sanitary sewer construction.
- f. All sanitary sewer manholes shall pass a vacuum test prior to acceptance by the Village of Richfield.

4. Steel Encasement Pipe:

- a. Steel encasement pipe shall comply with ASTM A139, Grade B with a minimum tensile strength of 60,000 psi, minimum yield strength of 35,000 psi, bituminous exterior coating and fully welded joints on the pipe circumference.
- b. Pipe blocking shall consist of casing chocks with a maximum of 1" between blocking and steel encasement pipe wall.
- c. Encasement pipe voids shall be filled with sand.
- d. Bulkhead each end of encasement pipe with 2" thick treated wood or redwood
- e. Provide end seals at each end of the encasement pipe.

5. Deflection Test

- a. All 8" diameter and larger/PVC plastic pipe, ABS pipe and PVC composite pipe shall be tested for maximum deflection of 5% not less than 30 days after final full backfill has been placed.
- b. Pull a deflection probe, having a diameter of not less than 95% of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM Specification (including the appendix) to which the pipe is manufactured through the sewer line without mechanical pulling device. Have a proving ring with an I.D. equal to the O.D. of the probe available at the time the probe is used to verify that the probe has the proper diameter by inserting the probe into the ring. The pipe shall be measured in accordance with ASTM D2122

6. Air Tests

- a. After backfilling, conduct air tests between two consecutive manholes.
- b. Dampen walls of air permeable pipe prior to conducting air tests. Dampening of the pipe walls and obstruction testing may be accomplished at the same time by propelling a snug-fitting inflated ball of other approved device through the pipe with water.
- c. For sewers 30" and smaller, plug each end of the section to be tested and all pipe outlets in the section. One plug used at a manhole shall have an inlet tap for connection an air hose from the air supply equipment.
- d. The air supply equipment shall include valves to control the air flow rate into the test section and pressure gages with minimum gradation of 0.1 psi and an accuracy of +/- 0.04 psi.
- e. Apply air pressure slowly to the test section until the pressure reaches 4psi, plus an adjustment of 0.433 psi for each foot of ground water above the pipe crown in the line being tested. Internal air pressure, including adjustment for groundwater, should never exceed 5 psi.
- f. When the pressure reaches 4 psi, plus adjustment for ground water, throttle the air supply so that the internal pressure in maintained between 4 and 3.5 psi for at least 2 minutes to permit temperature stabilization. When the pressure has stabilized and is at or above 3.5 psi, disconnect the air supply, start a stop watch, and allow stop watch to run until the pressure has dropped to 1 psi.
- g. Calculate the permissible time allocated for the 1 psi pressure drop on the basis of the diameter and length of main sewer tested, no adjustment being made for service connections included in the test section. The sir test for a section shall be considered acceptable if the time elapsed for the 1 psi pressure drop is equal to or greater than the time indicated below:

- For 8" sewer of all type except plastic

<u>Length of Main Tested</u>	<u>Minimum Holding Time (Min.)</u>
100'	1.25
200'	2.25
300'	3.5
400'	3.75
500'	3.75
600'	3.75

- For 8" plastic pipe sewers

<u>Length of Main Tested</u>	<u>Minimum Holding Time (Min:Sec)</u>
100'	7:34
150'	7:34
200'	7:34
250'	7:34
300'	7:36
350'	8:52
400'	10:08
450'	11:24

Where actual length tested are intermediate to those shown, interpolate the time. If the plastic pipe sewer test section fails and service connections were included in the test, recompute test time to include service connections in accordance with 9.6 of ASTM F1417.

7. Vacuum Test:

- a. Test by drawing a vacuum on the manhole using equipment specifically designed for such testing.
- b. Plug and brace pipes entering the manhole to prevent being drawn into the manhole.
- c. Place a test head with necessary gages and connections at the inside of the top of the cone section and seal in accordance with the manufacturer's instructions.
- d. Draw a vacuum of 10" of mercury and the turn off the vacuum pump.
- e. With valves closed, measure the time for the vacuum to drop 9". The test shall be successful if the time measured meets or exceeds the values indicated below:

<u>Manhole Depth</u>	<u>Manhole Diameter</u>	<u>Minimum Test Time (Sec)</u>
< 8'	48"	20
10'	48"	25
12'	48"	30
14'	48"	35
16'	48"	40
18'	48"	45

Hydrant Specifications

Any new hydrant to be installed shall be one of the following, Mueller Centurion or a Kennedy Guardian. After installation, the hydrants are to be painted the color specified below. The shut off riser will be above grade and easily accessible. The Richfield Fire Department will do final inspection of the fire hydrants.

- Specs: All hydrants will meet City of Cleveland hydrant specifications, with following exceptions.
- Height: The center of the 2 ½ inch outlet shall be no less than 18 inches above final grade and no more than 20 inches above final grade.
- Cap: 1 1/8-inch Pentagon nut (5 sides)
- Nozzles: 2, 2 ½ inch National Standard Threads
- Steamer: 5 inch Storz with a cap
- Barrel: 5 ¼ inch
- Caps: All caps must have a 5-sided pentagon nut
- Color: Sherwin Williams Safety Red 6403-25957
- Painting: All bare metal must be primed before final color can be applied- Sherwin Williams Steel Master 9500 or equivalent

SEEDING & MULCHING, 4"
TOPSOIL AND TYPE 1
SEED PER ODOT ITEM 659
* SEE NOTE 3

BACK OF CURB/EDGE
OF PAVEMENT

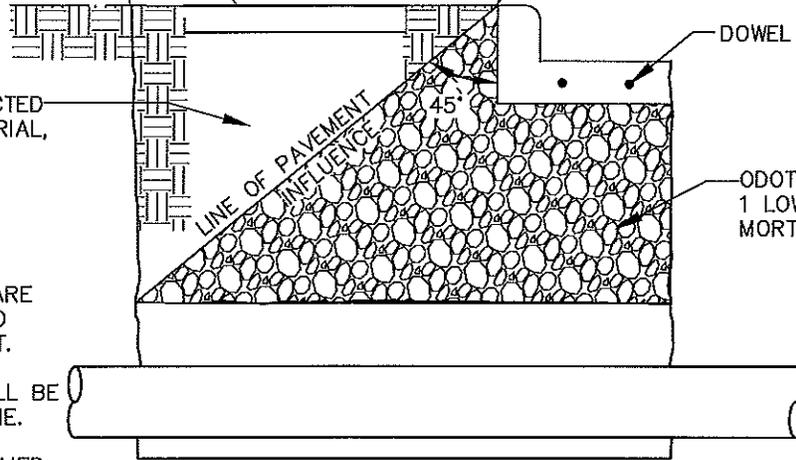
SUITABLE COMPACTED
EXCAVATED MATERIAL,
12" MAX LIFT

DOWEL (TYP)

ODOT ITEM 613, TYPE
1 LOW STRENGTH
MORTAR.

PAVEMENT NOTES:

1. THICKNESSES SHOWN ARE MINIMUM. CONTRACTOR TO MATCH EXISTING PAVEMENT.
2. ALL AGGREGATES SHALL BE CRUSHED, VIRGIN LIMESTONE.
3. EXCAVATIONS PERFORMED UNDER SIDEWALK OR DRIVE APRONS SHALL BE BACKFILLED WITH ODOT ITEM 613 - TYPE 1 LOW STRENGTH MORTAR TO THE BOTTOM OF THE AGGREGATE BASE.



TRENCH DETAIL
N.T.S.

BITUMINOUS SEALER
PER ODOT 705.04, ALL
SIDES. CUT 1 1/2"
DEEP X 1/4" WIDE
GROOVE TO ACCEPT
JOINT SEAL. SEAL
FLUSH TO SURFACE.

EPOXY COATED 1" DOWEL,
18" LONG 12" C/C
(CENTER IN SLAB) (6"
MIN. FROM SIDES OF
REPAIR)

REPLACE TO EXISTING
JOINT IF JOINT IS
WITHIN 3' OF REPAIR

DRILL 1 1/2" HOLE, 9"
DEEP AND SECURE
DOWELS WITH GROUT
PER ODOT 705.20
BLOW OUT HOLES WITH
COMPRESSED AIR
PRIOR TO GROUTING.
INSTALL GROUT
RETENTION DISK PER
ODOT DETAIL BP 2.5,
1.125" DIAMETER
OPENING.

NO. 6 WIRE FABRIC
PER ODOT 709.10

FULL DEPTH
SAW CUT
(TYP.)

ODOT ITEM 451, 9"
MIN. THICKNESS,
MATCH EXISTING
WITH CLASS MS CONC.

1'-0" MIN.
(TYP.)

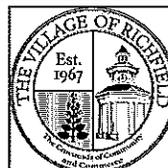
BACKFILL WITH ODOT
ITEM 613, TYPE 1 LSM.
EXTEND BEHIND CURB
AT A 45° ANGLE. (SEE
ABOVE)

COMPACTED BEDDING PER UTILITY OR
USE #57 OR #67 ANGULAR
AGGREGATE. NO SLAG.

d + 2' MIN.

NOTE: IF THE REPAIR IMPACTS AN EXISTING
EXPANSION JOINT, THE JOINT MUST BE
RE-ESTABLISHED PER ODOT STANDARD DETAILS.

TYPICAL SECTION FOR REPAIRING CONCRETE ROADS
N.T.S.



VILLAGE OF RICHFIELD
CONCRETE TRENCH DETAIL
REVISION: 3/10/16

SEEDING & MULCHING, 4"
TOPSOIL AND TYPE 1 SEED PER
ODOT ITEM 659
* SEE NOTE 3

SUITABLE COMPACTED
EXCAVATED MATERIAL,
12" MAX LIFT

BACK OF CURB/EDGE
OF PAVEMENT

ODOT ITEM 613, TYPE 1
LOW STRENGTH MORTAR.

LINE OF PAVEMENT
INFLUENCE
45°

PAVEMENT NOTES:

1. THICKNESSES SHOWN ARE MINIMUM. CONTRACTOR TO MATCH EXISTING PAVEMENT.
2. ALL AGGREGATES SHALL BE CRUSHED, VIRGIN LIMESTONE.
3. EXCAVATIONS PERFORMED UNDER SIDEWALK OR DRIVE APRONS SHALL BE BACKFILLED WITH ODOT ITEM 613 -- TYPE 1 LOW STRENGTH MORTAR TO THE BOTTOM OF THE AGGREGATE BASE.

TRENCH DETAIL
N.T.S.

BITUMINOUS SEALER
PER ODOT 705.04
(ALL SIDES)

1 1/2" ODOT ITEM 441, TYPE 1,
ASPHALT CONCRETE SURFACE COURSE

MIN. 6" ODOT ITEM 301
ASPHALT CONCRETE BASE

6" ODOT ITEM 304
AGGREGATE BASE

ODOT ITEM 407 TACK COAT
@ 0.1 GAL/SQ.YD.

FULL DEPTH
SAW CUT
(TYP.)

1'-0" MIN.
(TYP.)

BACKFILL WITH ODOT ITEM
613, TYPE 1 LSM. EXTEND
BEHIND CURB AT A 45°
ANGLE. (SEE ABOVE)

COMPACTED BEDDING
PER UTILITY OR USE
#57 OR #67 ANGULAR
AGGREGATE. NO
SLAG.

12"
MIN

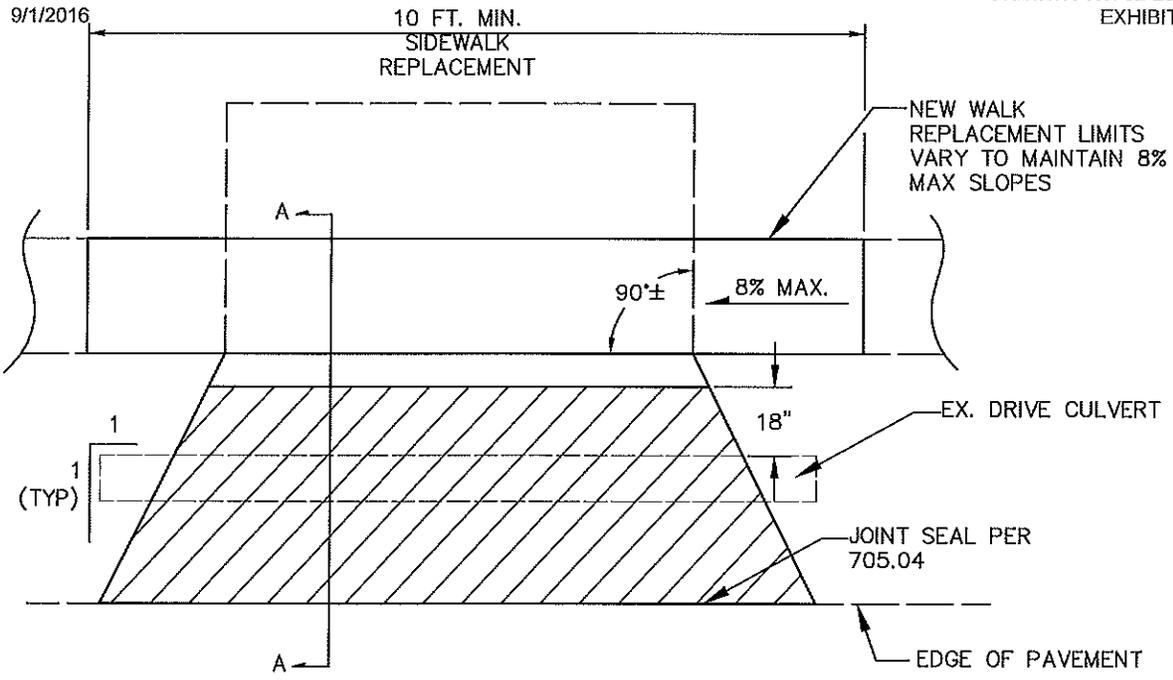
d + 2' MIN.

N.T.S.

TYPICAL SECTION FOR REPAIRING ASPHALT SURFACE AND ASPHALT BASE ROADS



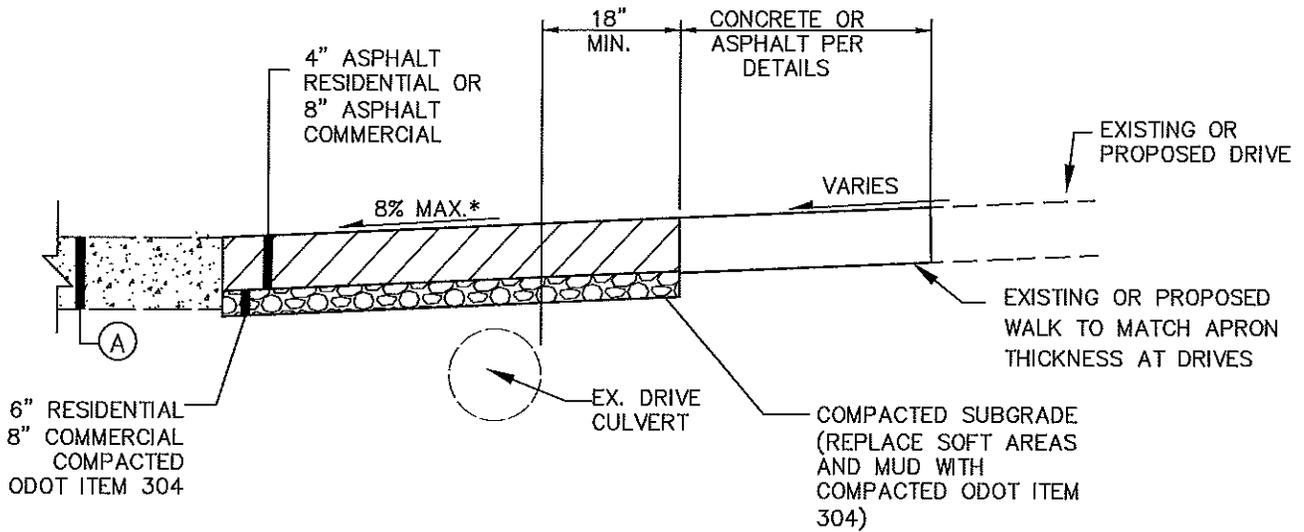
VILLAGE OF RICHFIELD
ASPHALT TRENCH DETAIL
REVISION: 3/10/16



DRIVEWAY APRON FOR UNCURBED ROADS
N.T.S.

REQUIRED LIMITS OF ASPHALT PAVEMENT

*SITE PLAN AND DRIVE SLOPES TO BE COORDINATED TO MAINTAIN SLOPES LESS THAN 8%

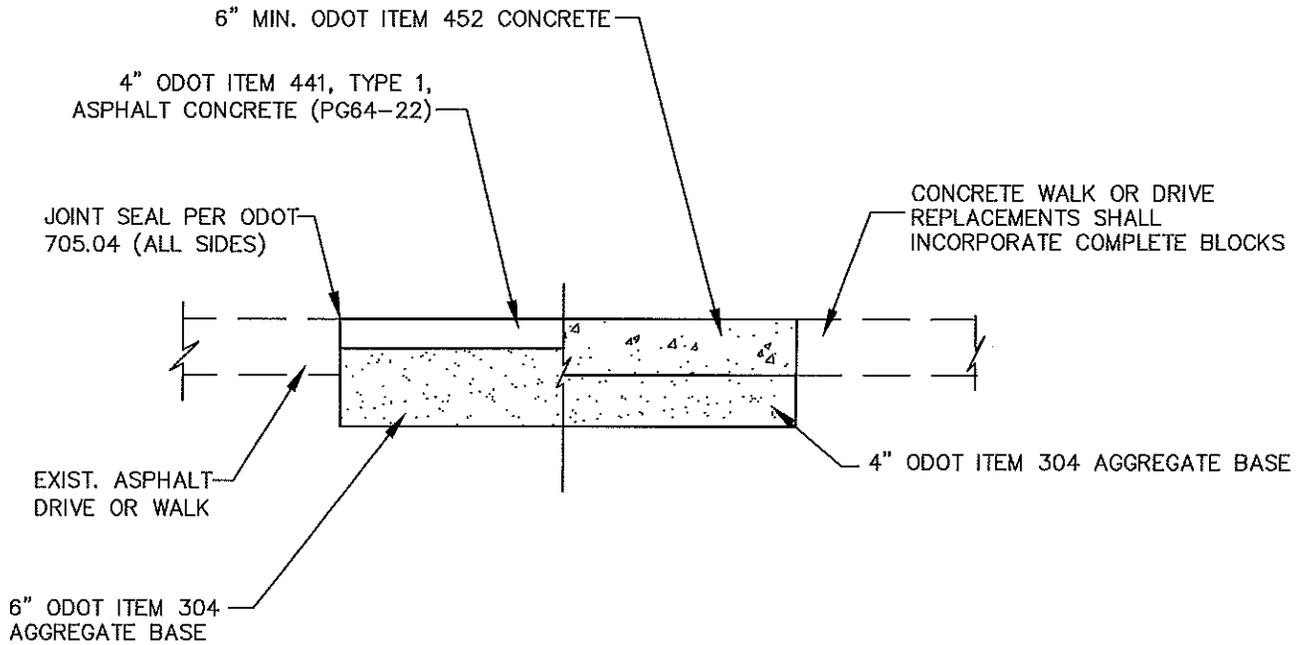


Ⓐ PAVEMENT - SEE PAVEMENT REPAIR DETAILS FOR SECTION COMPOSITION

DETAIL, A-A
N.T.S.



VILLAGE OF RICHFIELD
DRIVE APRON DETAIL
REVISION: 3/10/16



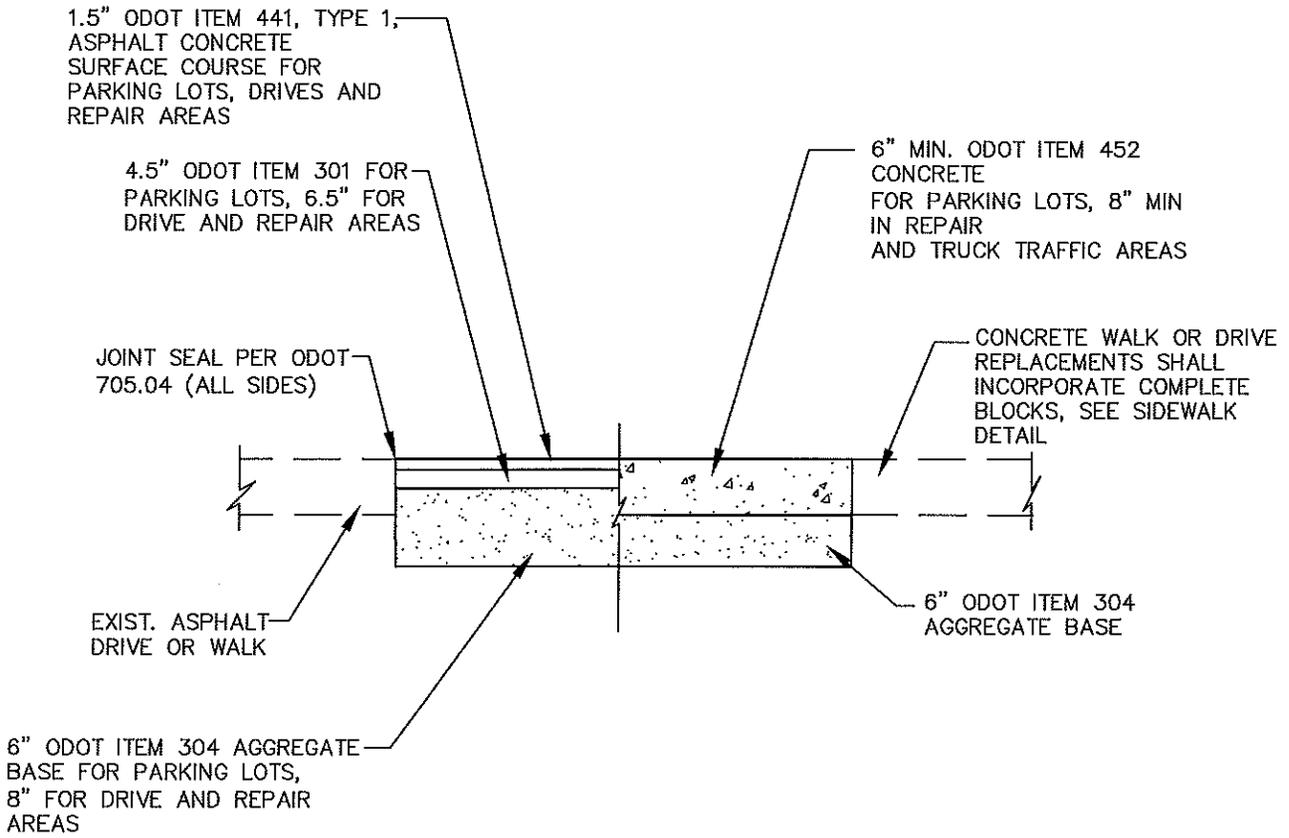
GENERAL PAVEMENT NOTE:

1. WHERE EDGES OF REPLACED SECTION EXTENDS WITHIN 2'-0" OF DRIVEWAY EDGE, PAVEMENT IS TO BE REPLACED TO DRIVEWAY EDGE.
2. THICKNESSES SHOWN ARE MINIMUM. CONTRACTOR TO MATCH EXISTING PAVEMENT.
3. ALL AGGREGATES SHALL BE CRUSHED, VIRGIN LIMESTONE.

RESIDENTIAL DRIVEWAY
N.T.S



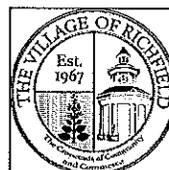
VILLAGE OF RICHFIELD
RESIDENTIAL DRIVE
REVISION: 3/10/16



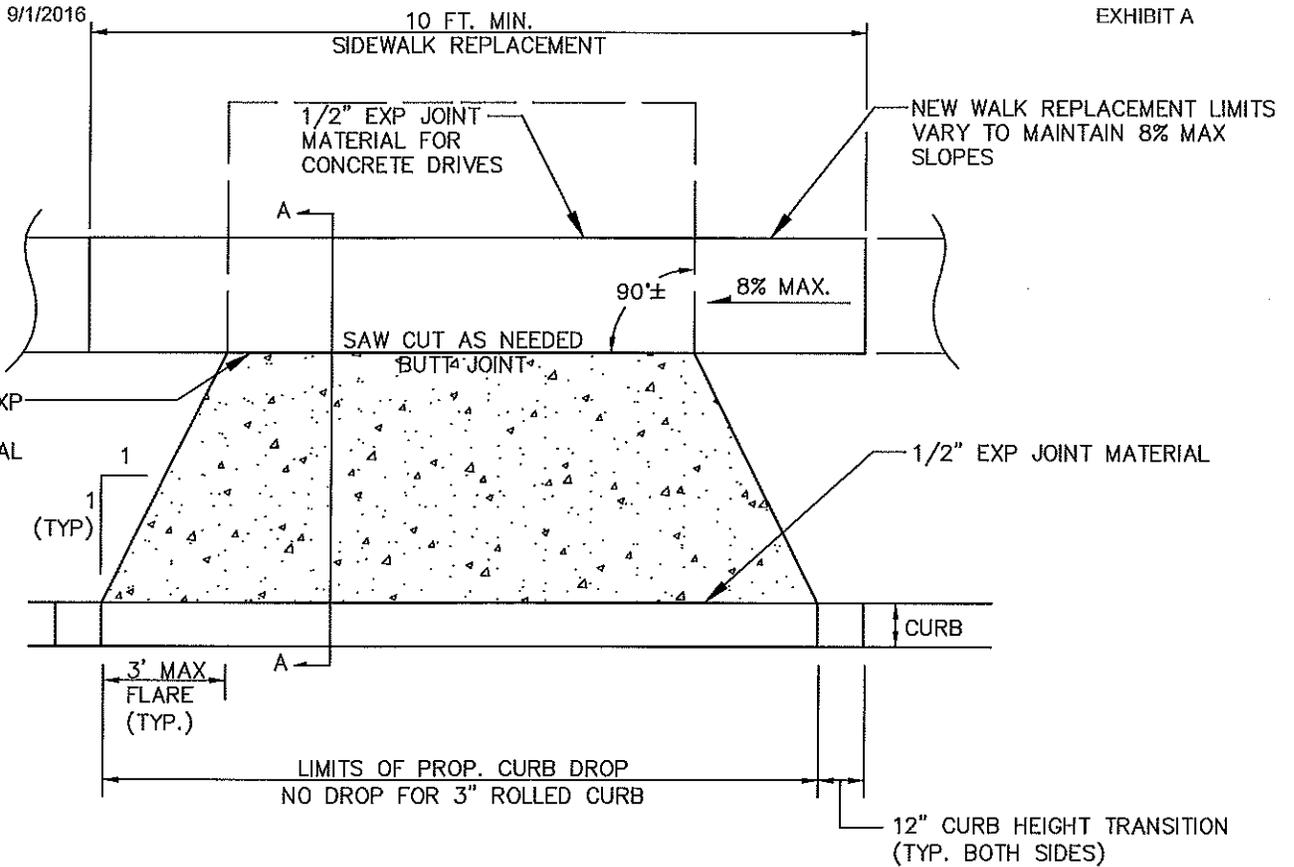
GENERAL PAVEMENT NOTE:

1. THICKNESSES SHOWN ARE MINIMUM. CONTRACTOR TO MATCH EXISTING PAVEMENT IN REPAIR AREAS.
2. ALL AGGREGATES SHALL BE CRUSHED, VIRGIN LIMESTONE.
3. ALL PAVEMENT INSTALLATION/REPAIR SHALL BE WITNESSED BY THE LOCAL INSPECTOR. A PROOFROLL USING A TRI-AXLE TRUCK LOADED WITH 15 TONS OF STONE WILL BE REQUIRED FOR AREAS LARGER THAN 300 S.F.

COMMERCIAL DRIVEWAY
N.T.S



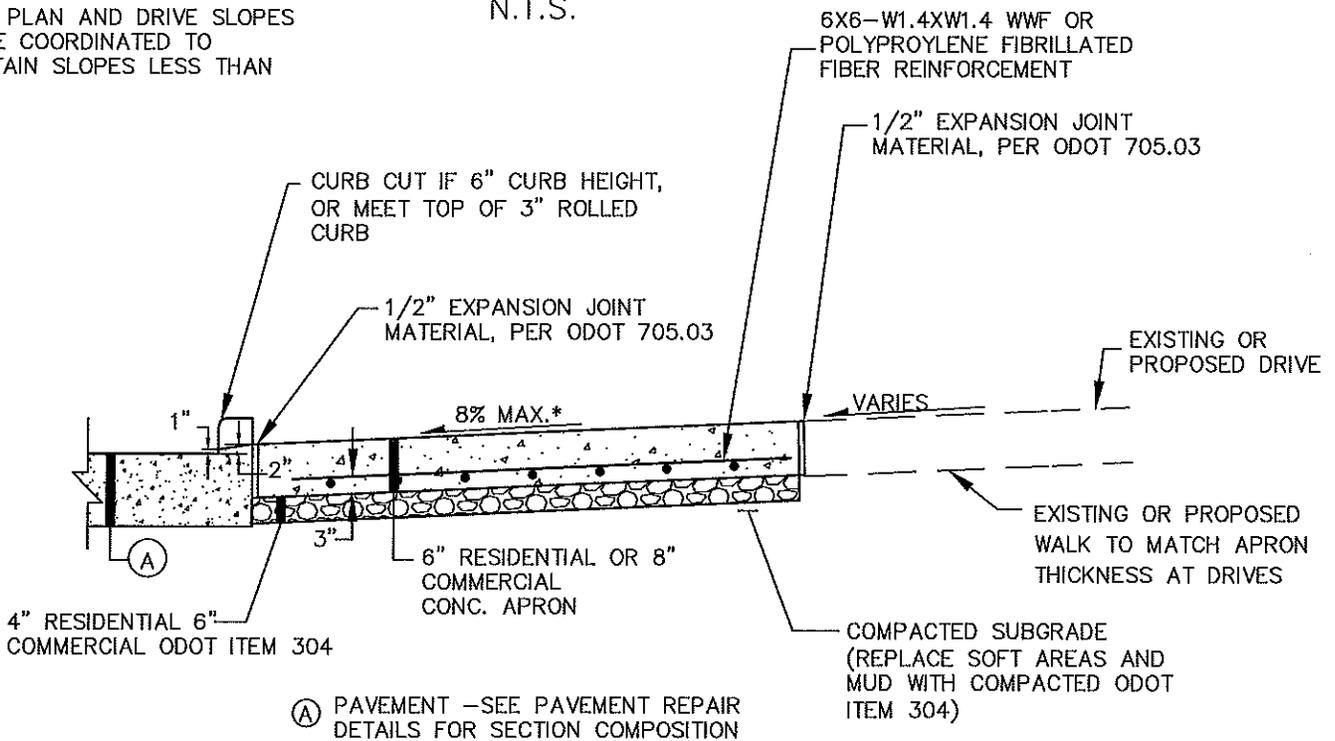
VILLAGE OF RICHFIELD
COMMERCIAL DRIVE
REVISION: 3/10/16



DRIVEWAY APRON FOR CURBED ROADS

N.T.S.

*SITE PLAN AND DRIVE SLOPES TO BE COORDINATED TO MAINTAIN SLOPES LESS THAN 8%

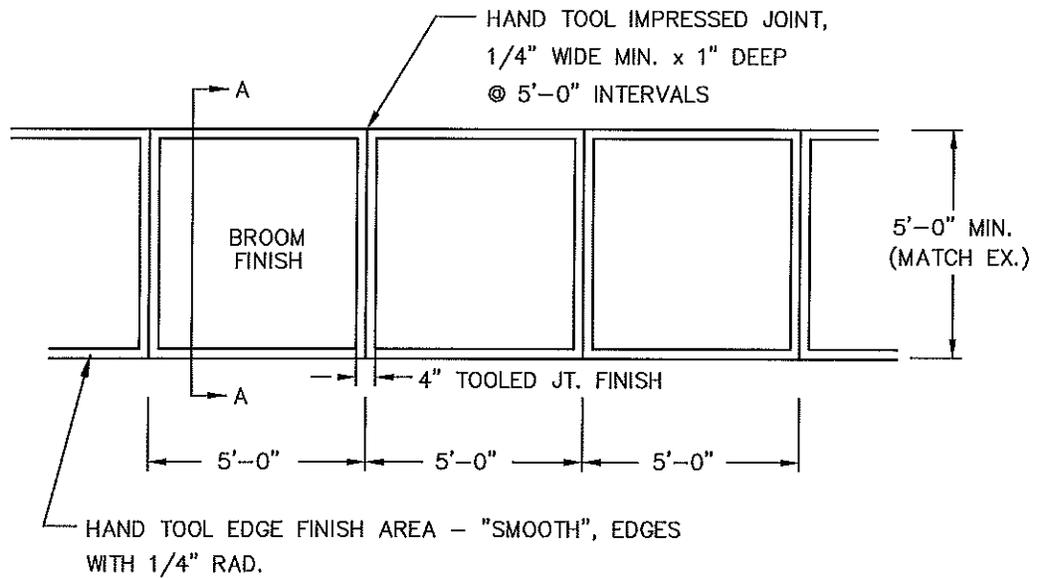


CURB DROP DETAIL, A-A

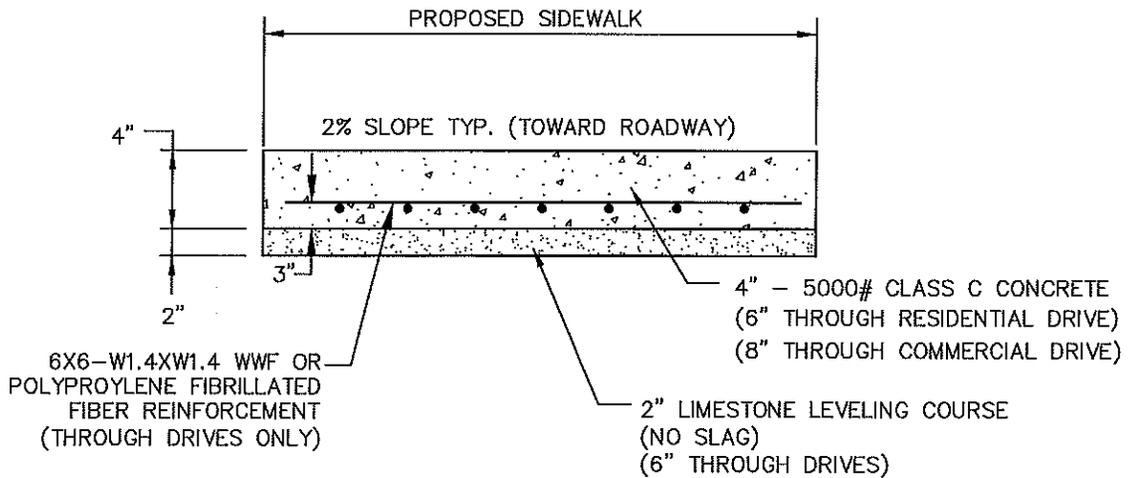
N.T.S.



VILLAGE OF RICHFIELD
DRIVE APRON DETAIL
REVISION: 3/10/16



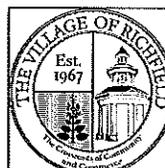
PLAN VIEW
NOT TO SCALE



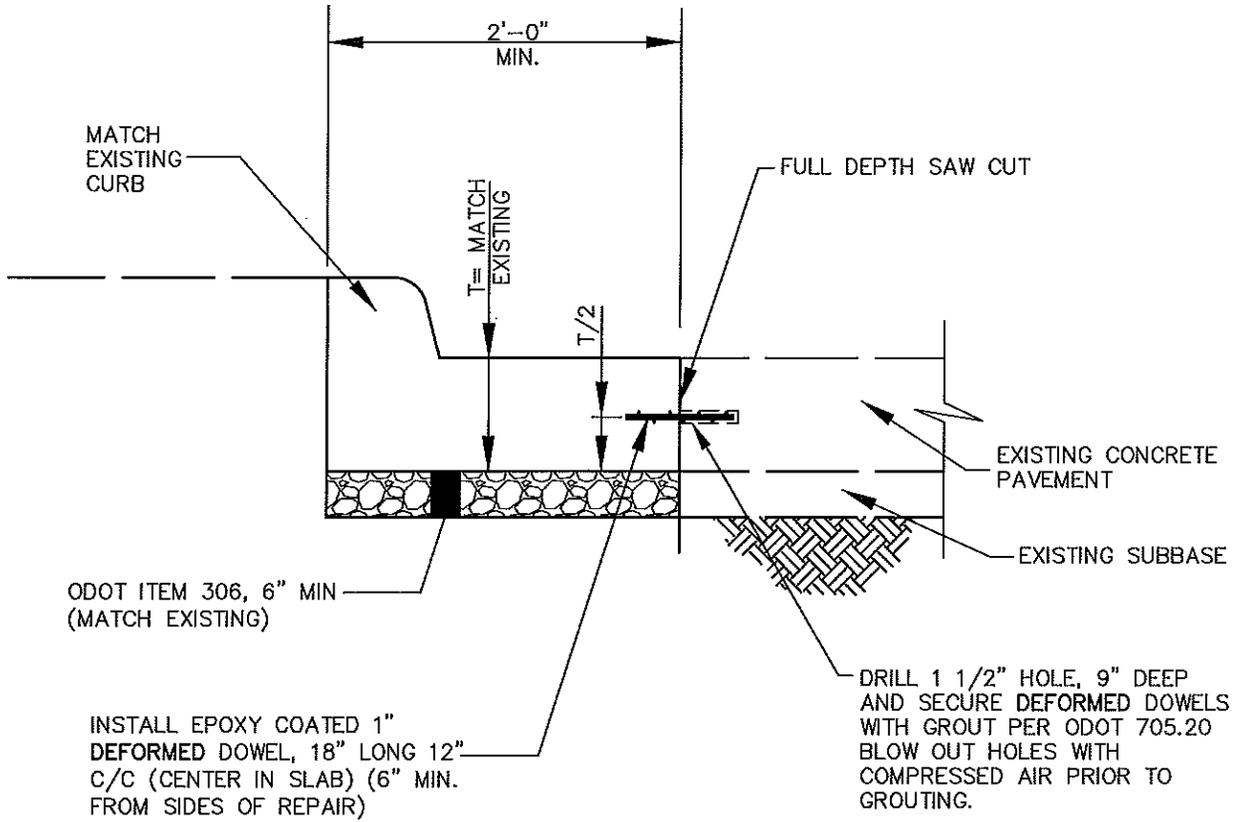
A SECTION
A NOT TO SCALE

NOTE: EXPANSION JOINTS SHALL BE PLACED AT FIFTY FOOT (50') INTERVALS, DRIVES, STEPS, CURBS, MANHOLES, CATCH BASINS, AND BUILDING FOUNDATIONS. SCORE MARKS SHALL BE AT FIVE FOOT (5') INTERVALS. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ODOT ITEM 608. EXPANSION MATERIAL SHALL BE 1/2" THICK (MIN) AND CONFIRM TO ODOT 705.03.

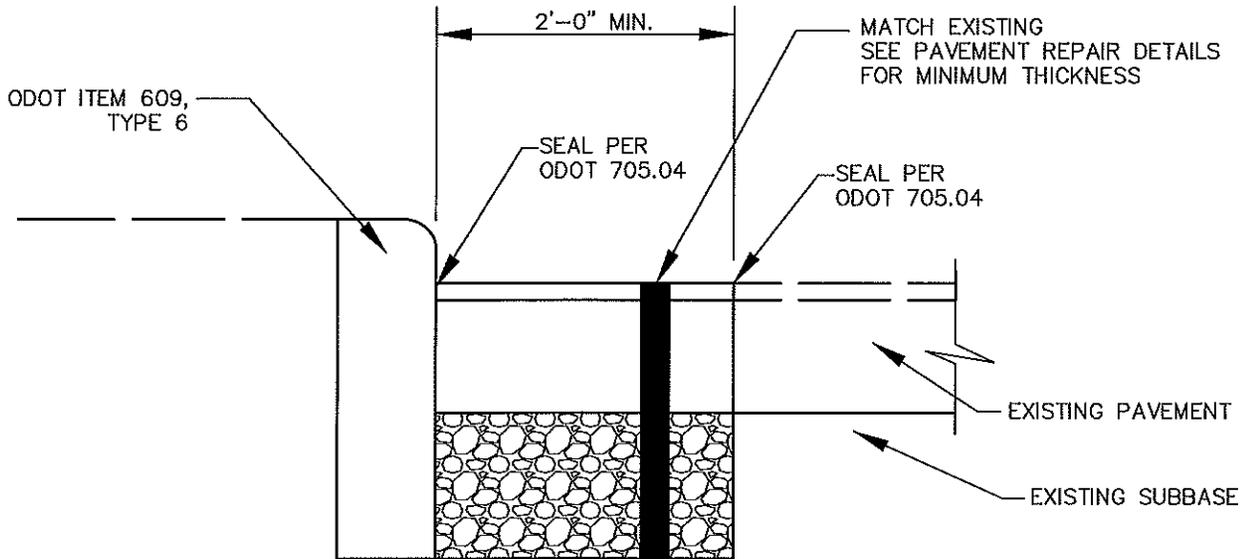
CONCRETE SIDEWALK
N.T.S



VILLAGE OF RICHFIELD
SIDEWALK DETAIL
REVISION: 3/10/16



INTEGRAL CONCRETE CURB REPAIR DETAIL
N.T.S.

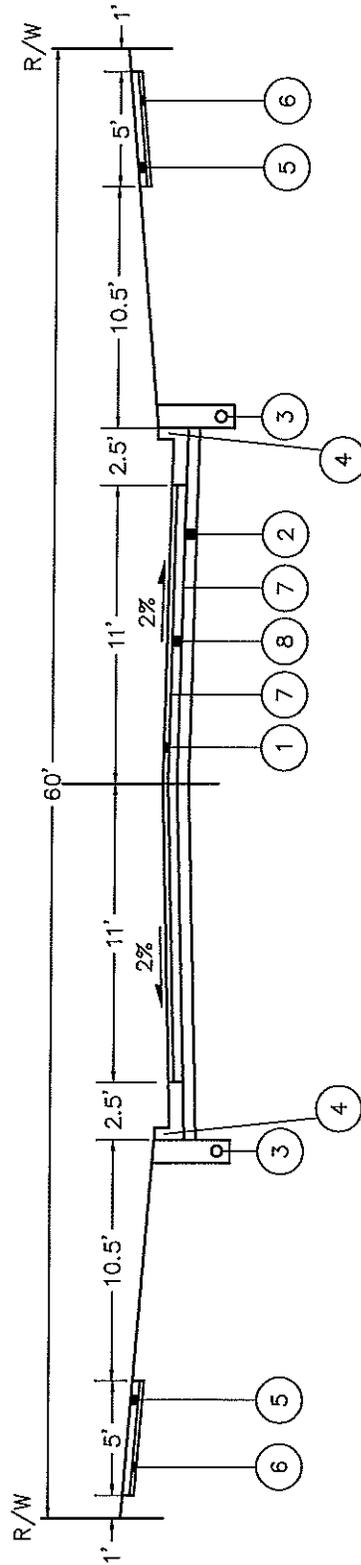


6" X 18" CONCRETE CURB REPAIR DETAIL
N.T.S.



VILLAGE OF RICHFIELD
CURB REPLACEMENT
REVISION: 3/10/16

TYPE 1
LOCAL - 60' RIGHT OF WAY



LONGITUDINAL GRADE: 0.5% MINIMUM
8.0% MAXIMUM

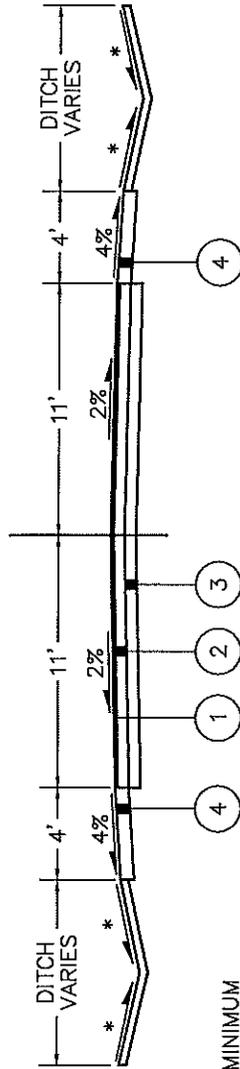
LEGEND

- 1 ITEM 441 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22
- 2 ITEM 304 - 6" AGGREGATE BASE
- 3 ITEM 605 - 6" UNDERDRAINS (SEE UNDERDRAIN DETAILS)
- 4 ITEM 609 - ODOT CURB AND GUTTER, TYPE 2
- 5 ITEM 608 - 4" CONCRETE WALK (6" THROUGH RESIDENTIAL DRIVES) (8" THROUGH COMMERCIAL DRIVES)
- 6 ITEM 304 - 2" AGGREGATE BASE (6" THROUGH DRIVES)
- 7 ITEM 407 - TACK COAT, .1 GAL/SY
- 8 ITEM 301 - 5 1/2" ASPHALT CONCRETE BASE



VILLAGE OF RICHFIELD
TYPE 1
REVISION: 3/10/16

TYPE 1A
(R-1 RESIDENTIAL ZONING ONLY)
LOCAL 60' RIGHT OF WAY



LEGEND

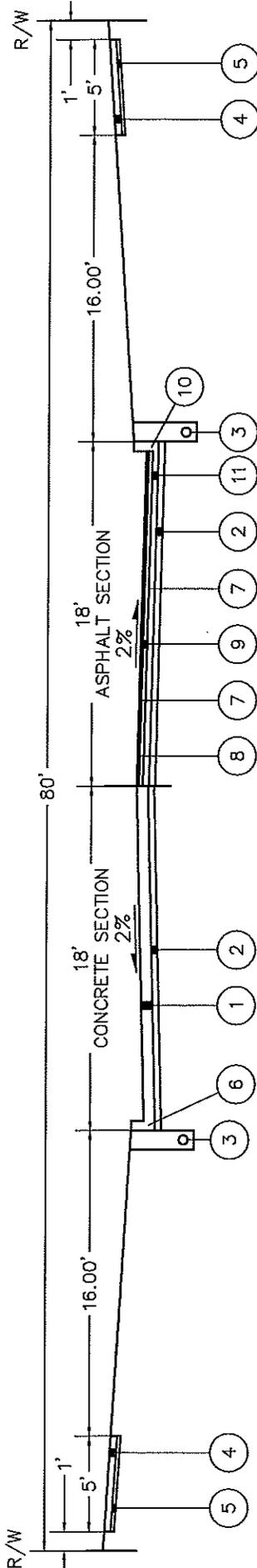
- 1 ITEM 441 - 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (PG64-22)
- 2 ITEM 301 - 5.5" ASPHALT CONCRETE BASE
- 3 ITEM 304 - 6" AGGREGATE BASE
- 4 ITEM 411 - 6" STABILIZED CRUSHED AGGREGATE
- 5 ITEM 407 - TACK COAT (0.1 GAL/SY)



VILLAGE OF RICHFIELD
TYPE 1A
REVISION: 3/10/16

TYPE 2
COMMERCIAL & INDUSTRIAL - 80' RIGHT OF WAY

-PAVEMENT COMPOSITION WILL BE DIRECTED BY
THE VILLAGE



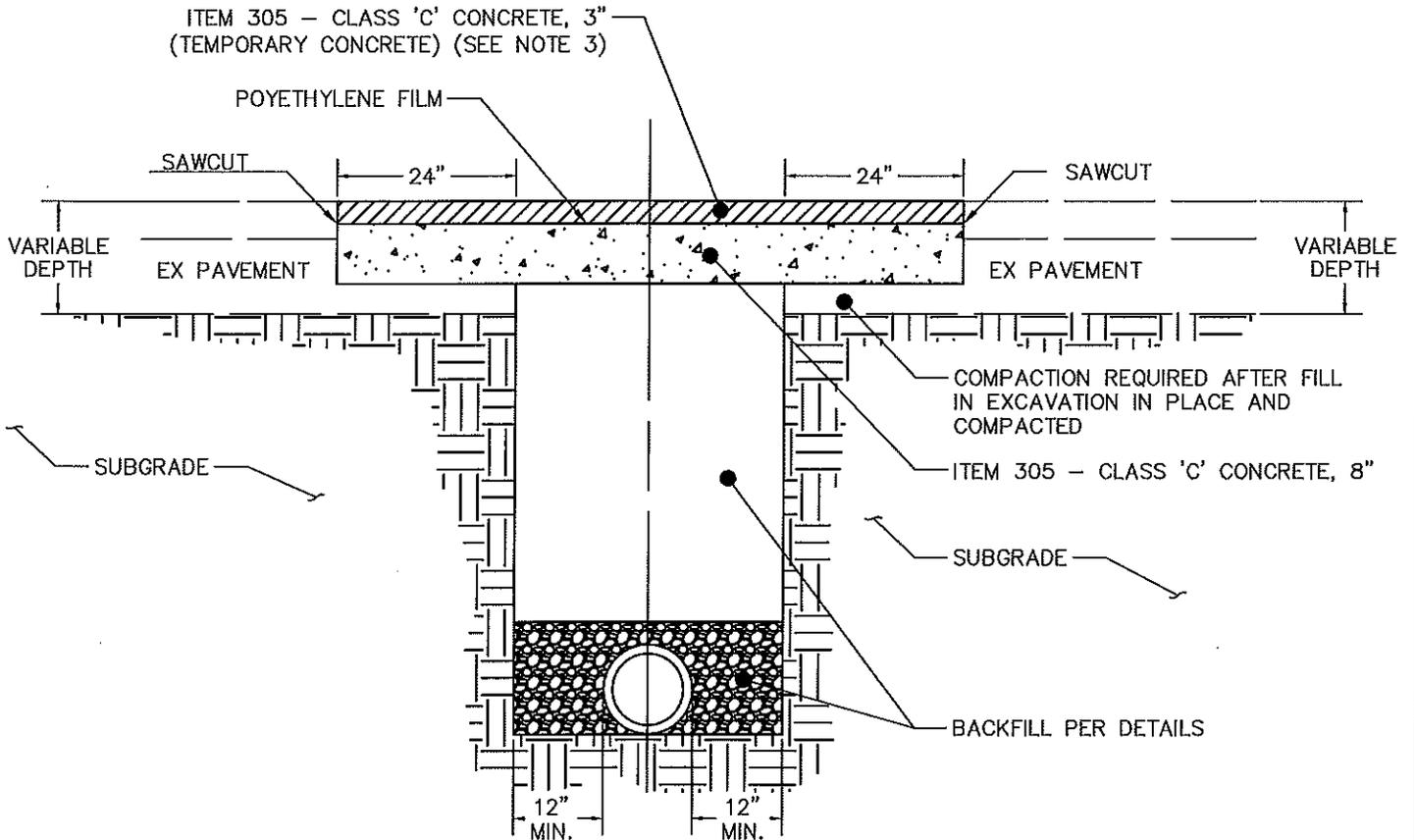
LONGITUDINAL GRADE: 0.5% MINIMUM
8.0% MAXIMUM

LEGEND

- | | |
|----|---|
| 1 | ITEM 451 - 7" REINFORCED CONCRETE |
| 2 | ITEM 304 - 6" AGGREGATE BASE |
| 3 | ITEM 605 - 6" UNDERDRAINS (SEE UNDERDRAIN DETAILS) |
| 4 | ITEM 608 - 4" CONCRETE WALK (8" THROUGH DRIVE) |
| 5 | ITEM 304 - 2" AGGREGATE BASE (6" THROUGH DRIVES) |
| 6 | ITEM 609 - ODOT CURB, TYPE 2--A |
| 7 | ITEM 407 - TACK COAT, (0.1 GAL/SY) |
| 8 | ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 |
| 9 | ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448) |
| 10 | ITEM 609 - ODOT CURB, TYPE 6 |
| 11 | ITEM 304 - 6" ASPHALT CONCRETE BASE |



VILLAGE OF RICHFIELD
TYPE 2
REVISION: 3/10/16



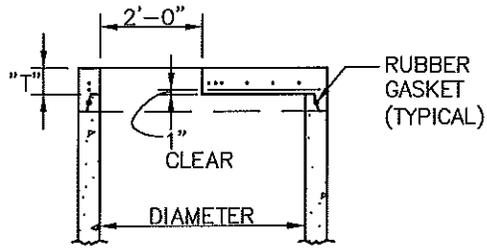
1. WHEN WEATHER PERMITS, REMOVE TEMPORARY CONCRETE AND POLYETHYLENE FILM AND PLACE ITEM 441, TYPE 1, SURFACE COURSE.
2. PATCH SMOOTHNESS SHALL CONFORM WITH 401.19 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS (2010 EDITION). THE REQUIRED SMOOTHNESS OF ASPHALT SURFACE COURSE CANNOT EXCEED 1/4 INCH FROM THE TESTING EDGE OF A 10 FOOT STRAIGHTEDGE. THE CONTRACTOR IS REQUIRED TO PROVIDE A STRAIGHT EDGE THAT IS SATISFACTORY TO THE ENGINEER.

COLD WEATHER SURFACE RESTORATION DETAIL

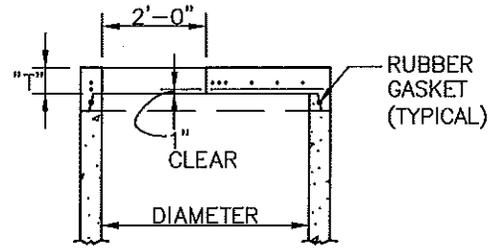
N.T.S.



VILLAGE OF RICHFIELD
 RESTORATION DETAIL
 REVISION: 3/10/16



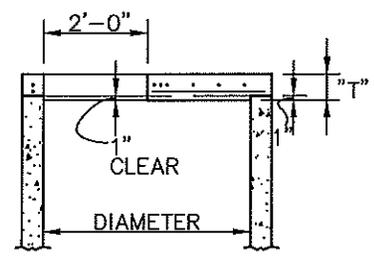
SECTION
PRECAST
TOP SLAB



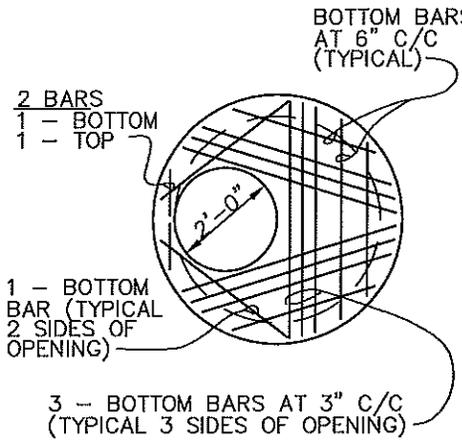
SECTION
CAST IN PLACE
TOP SLAB

MANHOLE TOP SLAB SCHEDULE			
MARK	DIAMETER	MINIMUM "T"	REINFORCING BAR SIZE
	4'-0"	6"	# 4
	5'-0"	8"	# 5
	6'-0"	8"	# 5
	7'-0"	8"	# 5
	8'-0"	10"	# 5
	9'-0"	10"	# 6

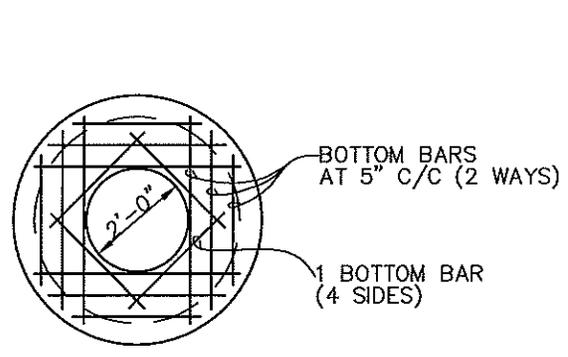
* IF DISTANCE FROM TOP OF FRAME TO TOP OF PIPE PENETRATION IS GREATER THAN 4'-4", A PRECAST ECCENTRIC CONE TOP MUST BE USED.



SECTION
CAST IN PLACE
TOP SLAB



PLAN

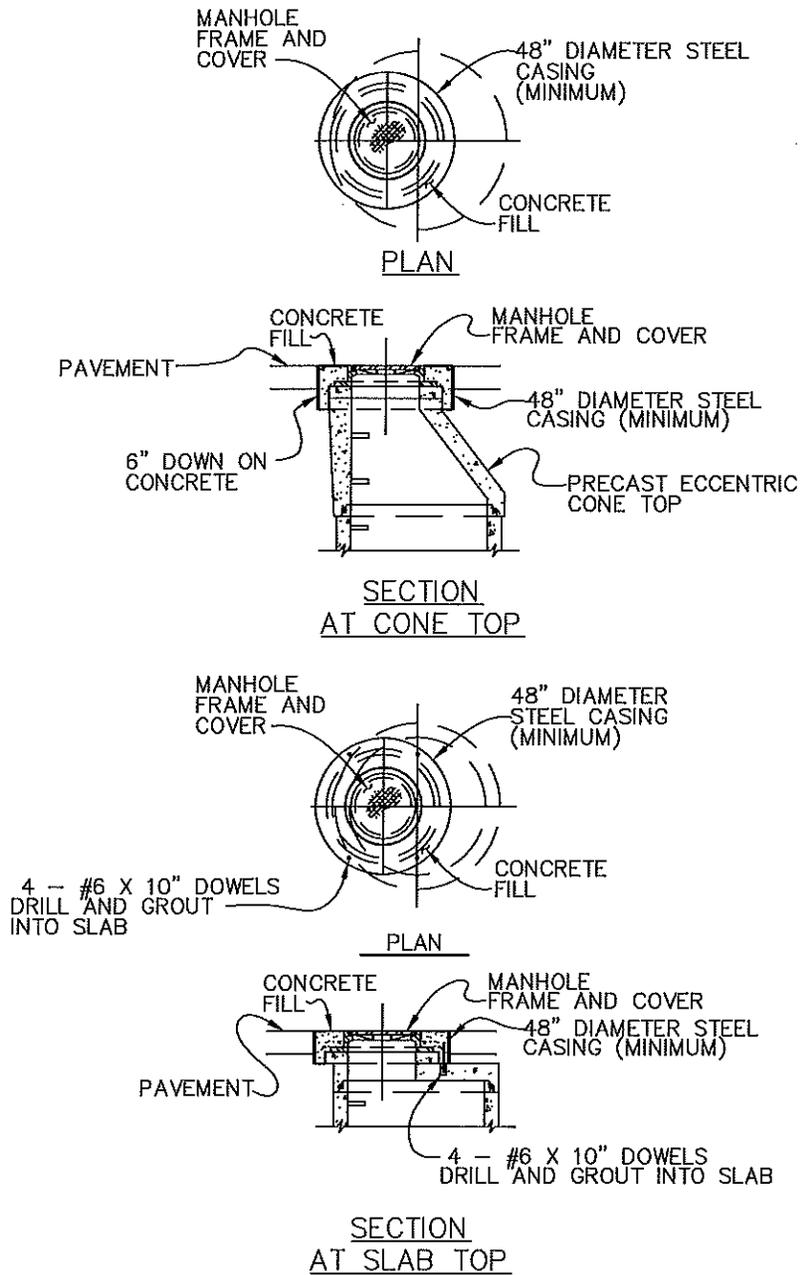


PLAN

MANHOLE TOP SLAB DETAILS



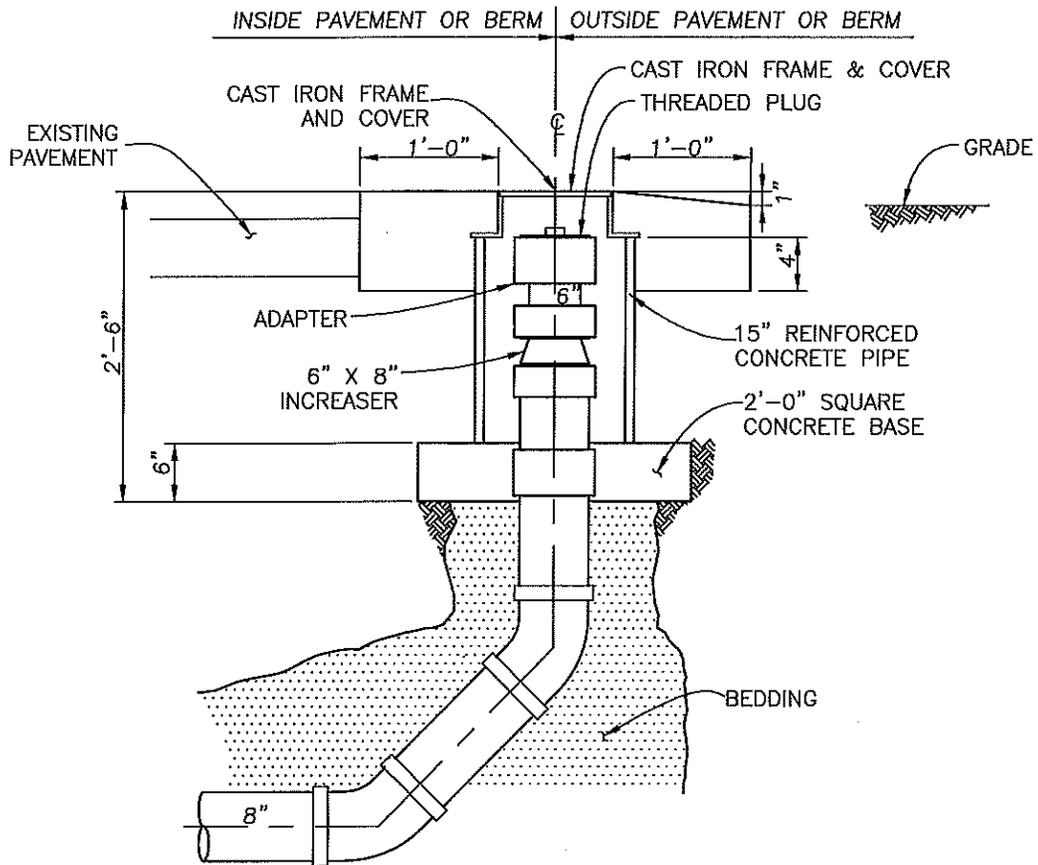
VILLAGE OF RICHFIELD
MANHOLE TOP SLAB DETAIL
REVISION: 3/10/16



MANHOLE FRAME ENCASEMENT DETAILS



VILLAGE OF RICHFIELD
MANHOLE FRAME ENCASEMENT
REVISION: 3/10/16



CLEAN OUT DETAIL IN PAVEMENT

NOTES:

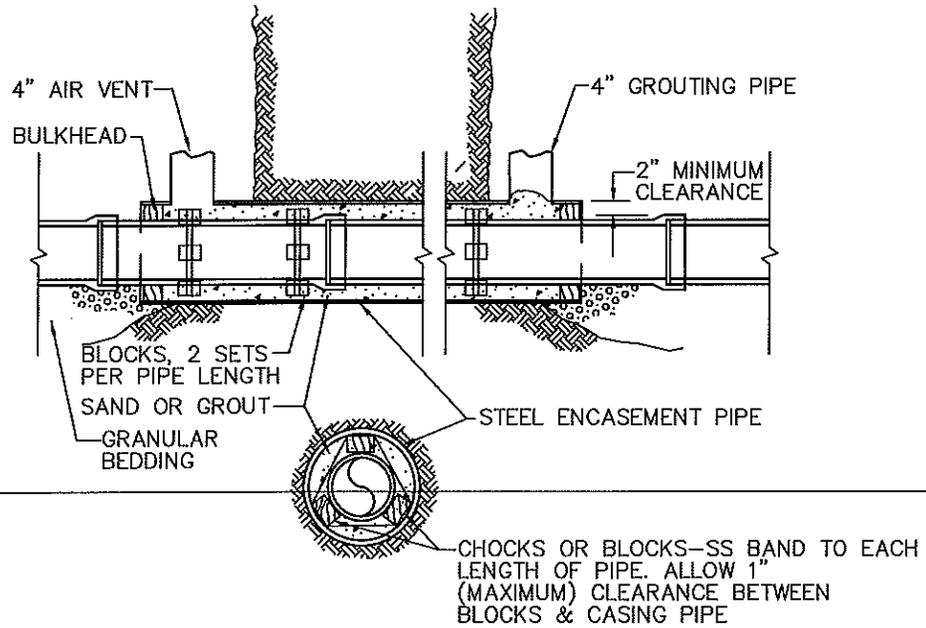
IF CLEANOUT IS LOCATED IN PAVEMENT,
PROVIDE BACKFILL MATERIAL PER DETAILS
TO BOTTOM OF PAVEMENT MATERIAL.

CONCRETE COLLAR IS NOT REQUIRED IN
RESIDENTIAL LAWN AREAS.

6" X 8" INCREASER IS NOT REQUIRED FOR
6" AND 4" PIPE.



VILLAGE OF RICHFIELD
CLEAN OUT IN PAVEMENT
REVISION: 3/10/16

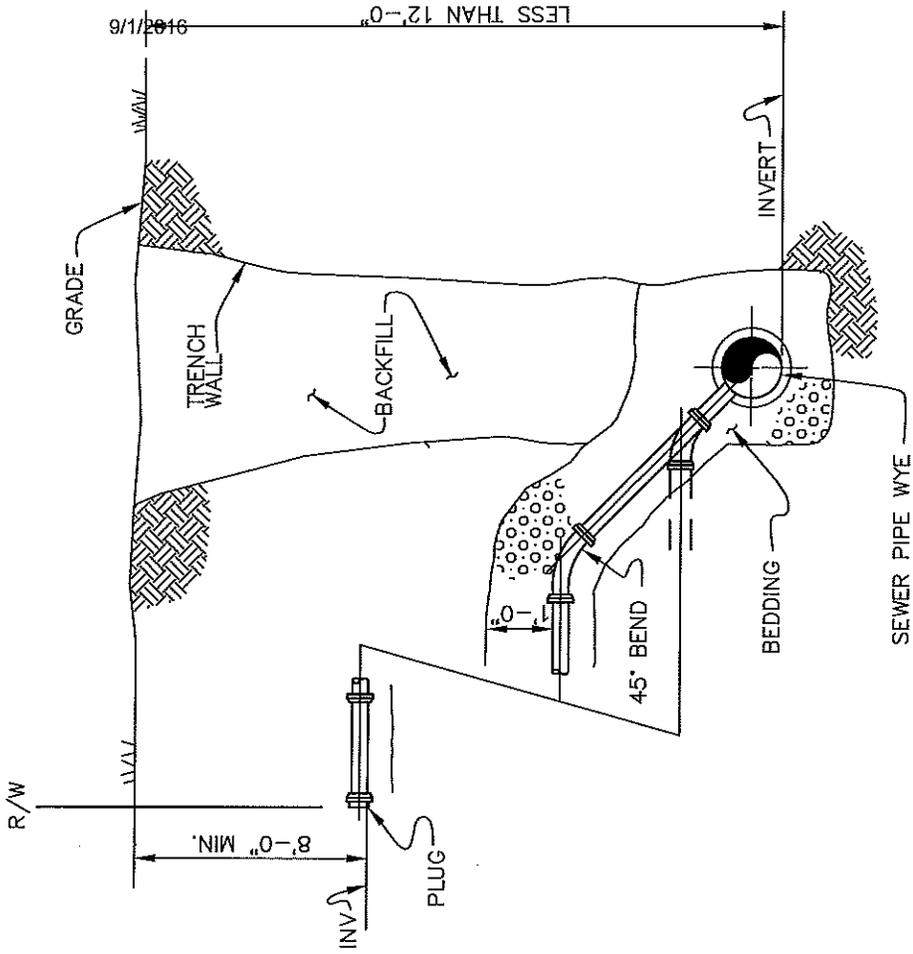


NOTE:
WELD ALL ENCASEMENT PIPE JOINTS
ASPHALT COAT EXTERIOR OF
ENCASEMENT PIPE AND FILLED WITH
BLOWN SAND OR GROUT FROM ONE END

BORING DETAIL
NO SCALE

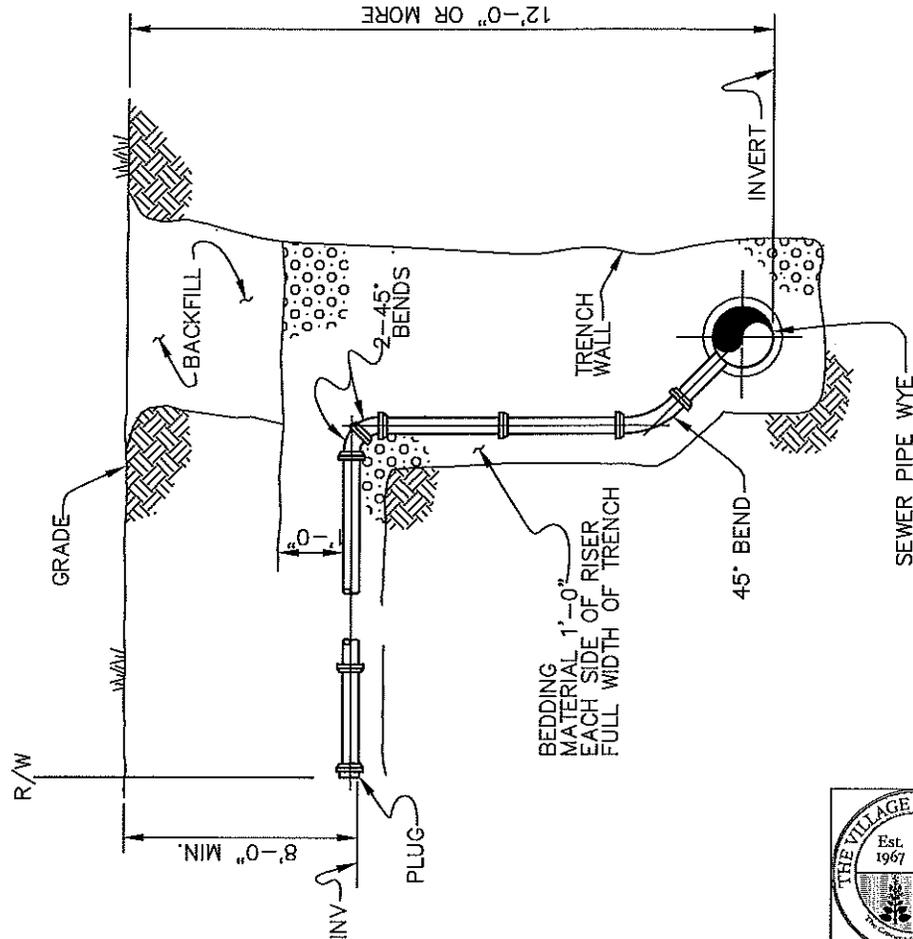


VILLAGE OF RICHFIELD
BORING DETAIL
REVISION: 3/10/16



SECTION

CONNECTIONS WHERE DEPTH
OF MAIN IS LESS THAN
12'-0"



SECTION

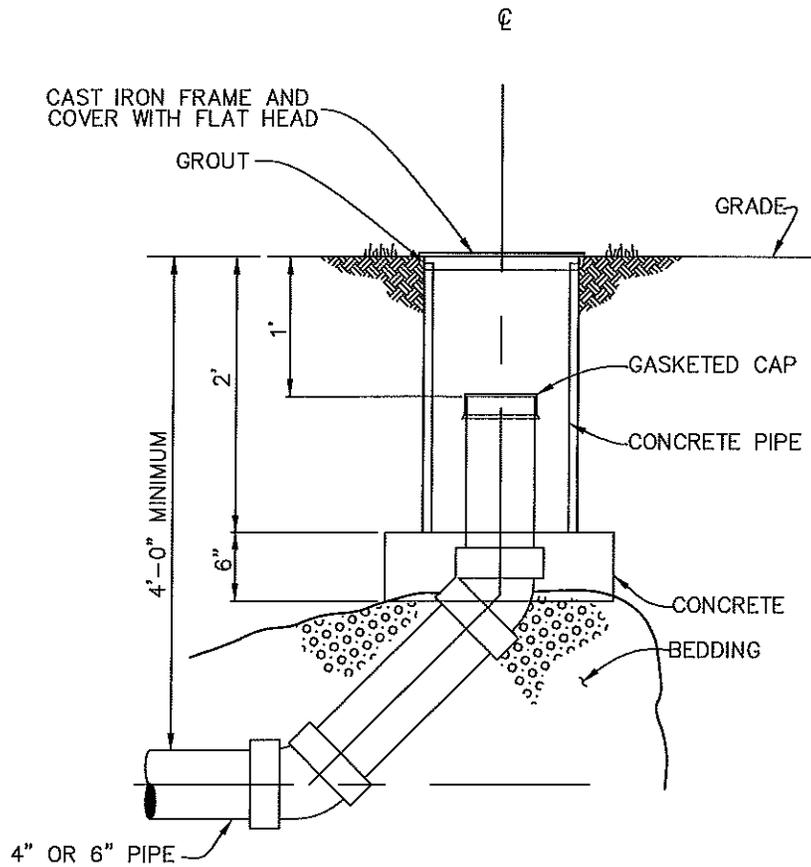
RISERS WHERE DEPTH
OF MAIN EXCEEDS
12'-0"

SANITARY SERVICE CONNECTIONS

NO SCALE

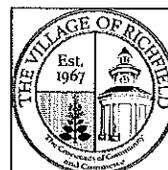


VILLAGE OF RICHFIELD
SANITARY SERVICE CONNECTION
REVISION: 3/10/16

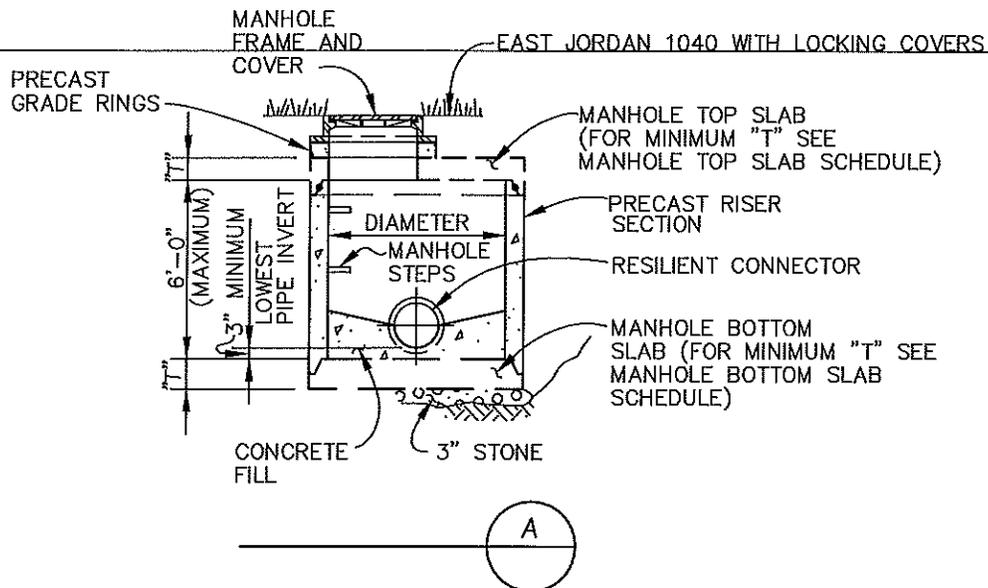
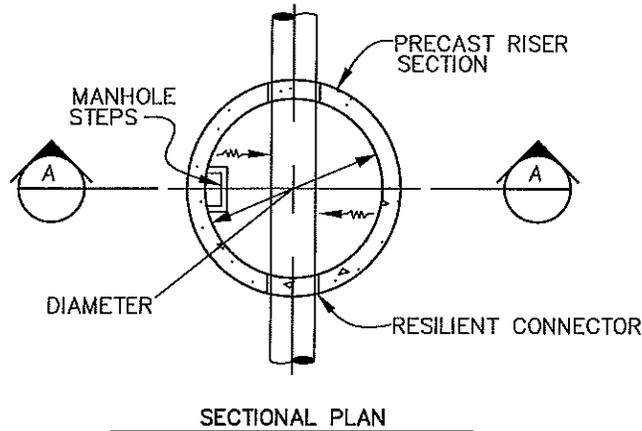
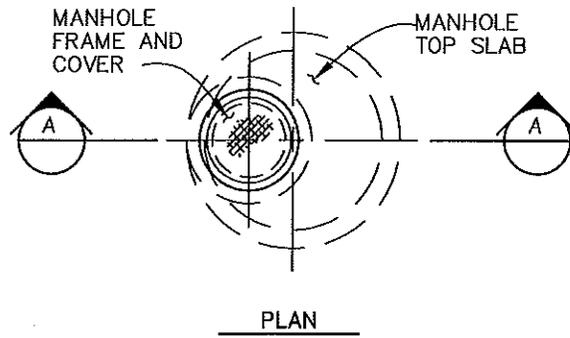


NOTE:
IF LOCATED IN PAVEMENT
GRANULAR BACK FILL TO
BOTTOM OF PAVEMENT.

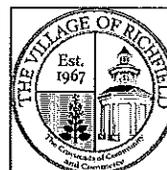
CLEAN OUT DETAIL ON GRADE



VILLAGE OF RICHFIELD
CLEAN OUT ON GRADE
REVISION: 3/10/16

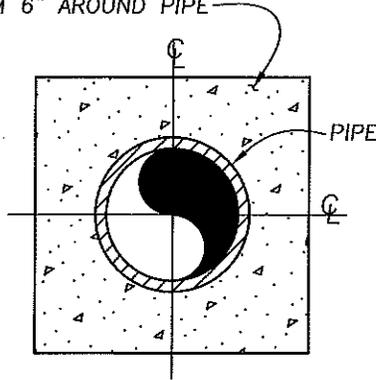


NOTE: PRECAST SECTIONS (RUBBER GASKET) AND RESILIENT CONNECTORS ARE TO BE USED UNLESS OTHERWISE SPECIFIED.

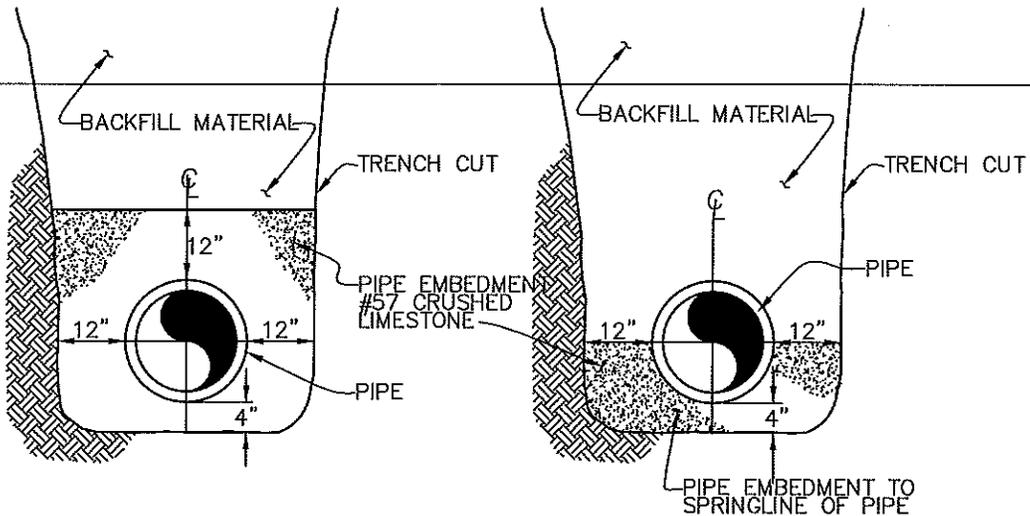


VILLAGE OF RICHFIELD
SHALLOW MANHOLE DETAIL
REVISION: 3/10/16

CLASS C CONCRETE
MINIMUM 6" AROUND PIPE



CONCRETE PIPE
ENCASEMENT



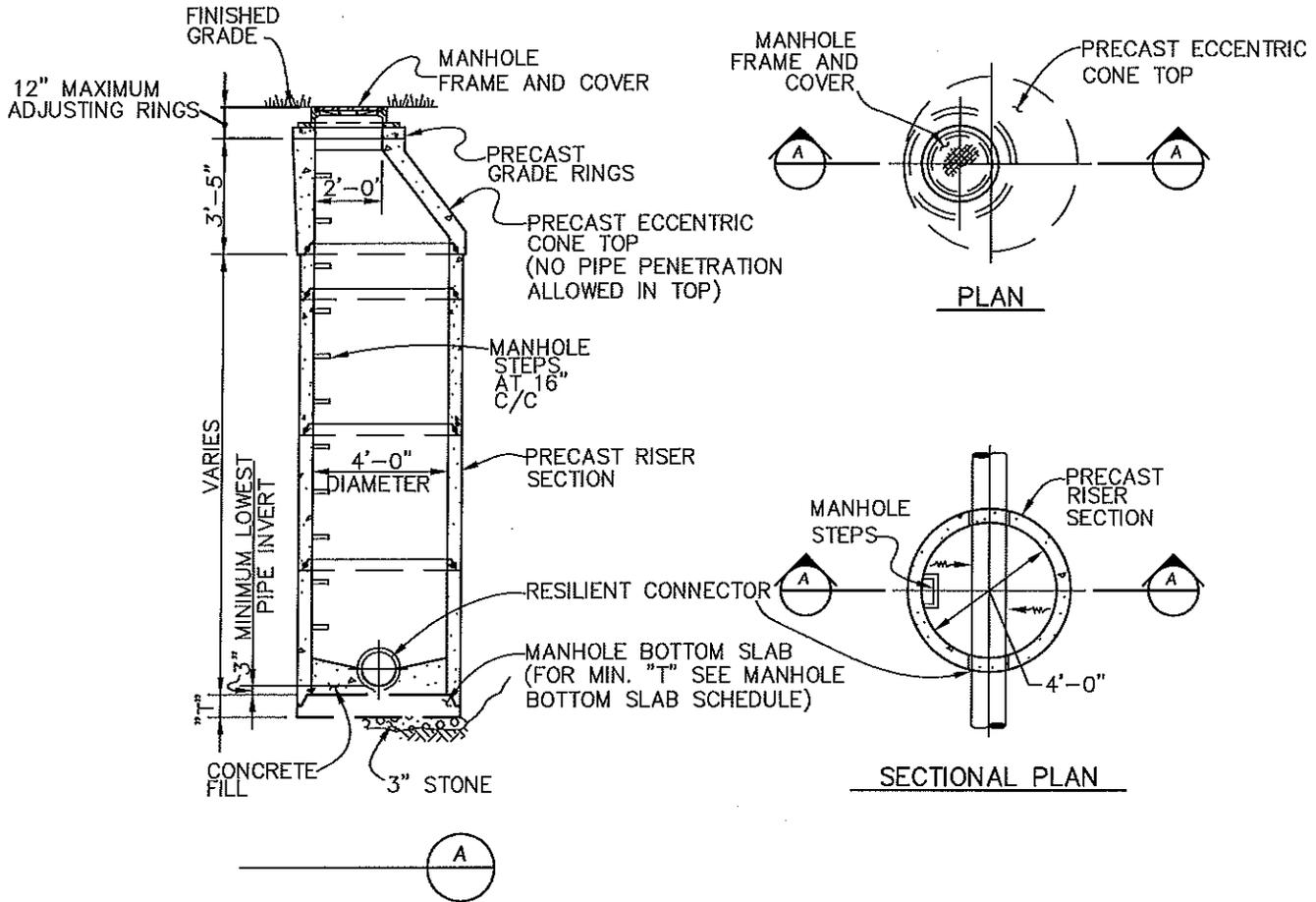
GRANULAR EMBEDMENT
PVC PIPE AND FORCE MAIN

GRANULAR EMBEDMENT
REINFORCED CONCRETE PIPE

BEDDING DETAILS



VILLAGE OF RICHFIELD
SEWER BEDDING DETAILS
REVISION: 3/10/16

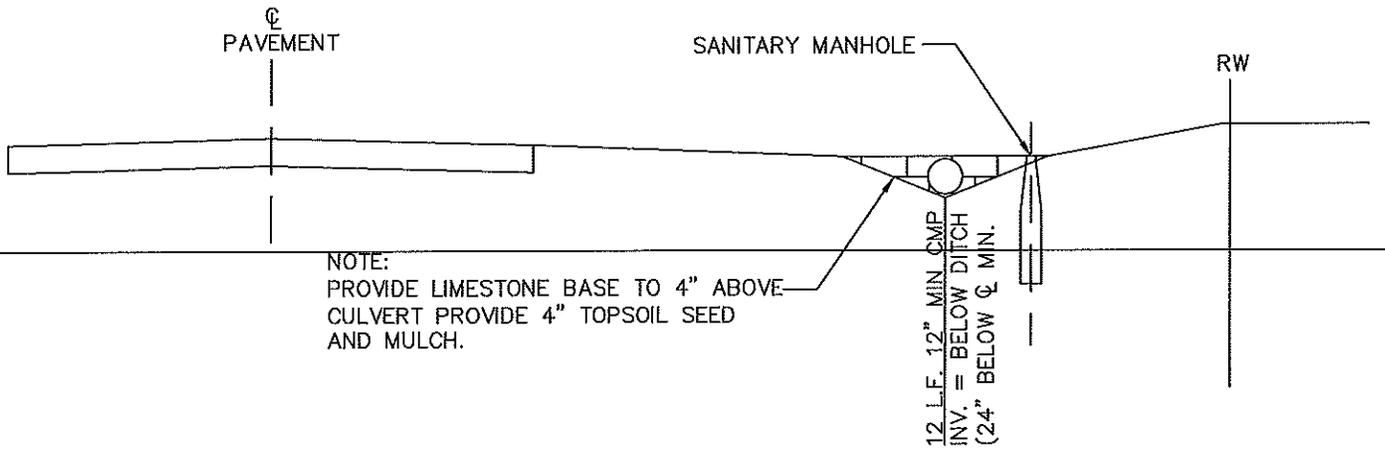


NOTE: PRECAST SECTIONS (RUBBER GASKET) AND RESILIENT CONNECTORS ARE TO BE USED UNLESS OTHERWISE SPECIFIED.

MANHOLE DETAILS



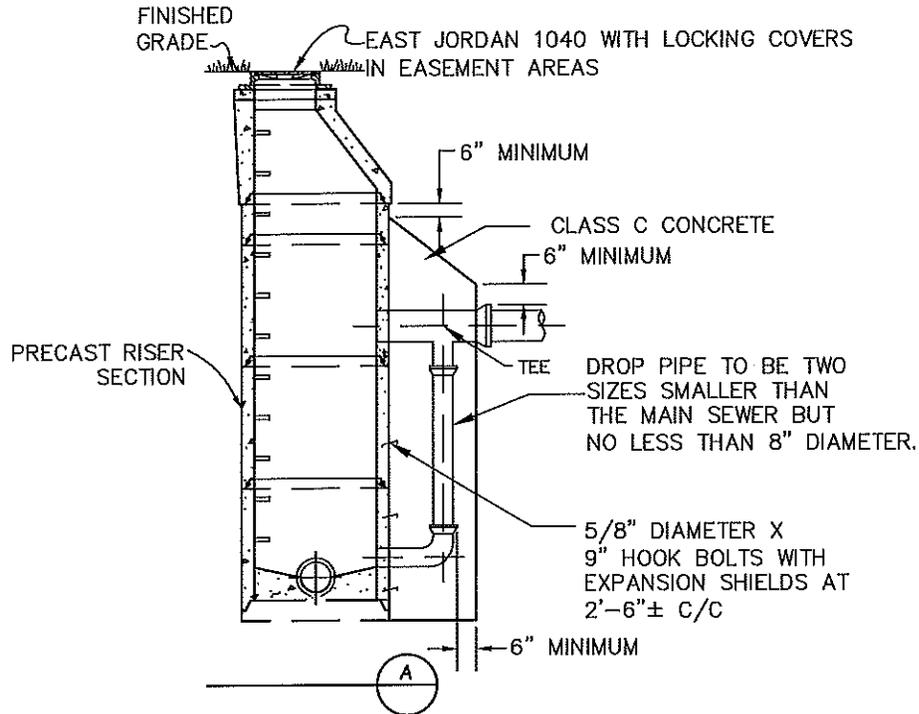
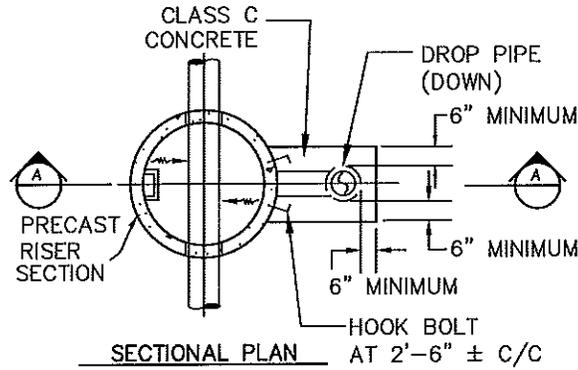
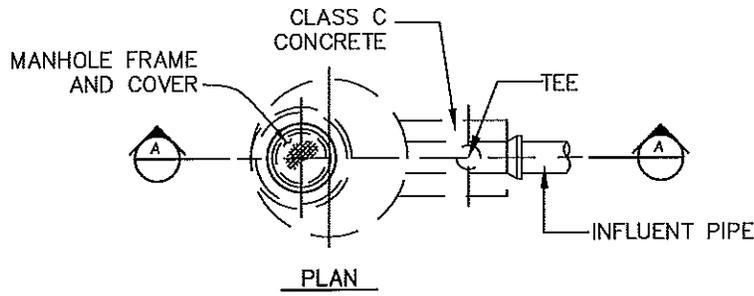
VILLAGE OF RICHFIELD
SANITARY MANHOLE DETAILS
REVISION: 3/10/16



SANITARY MANHOLE CULVERT DETAIL
NO SCALE



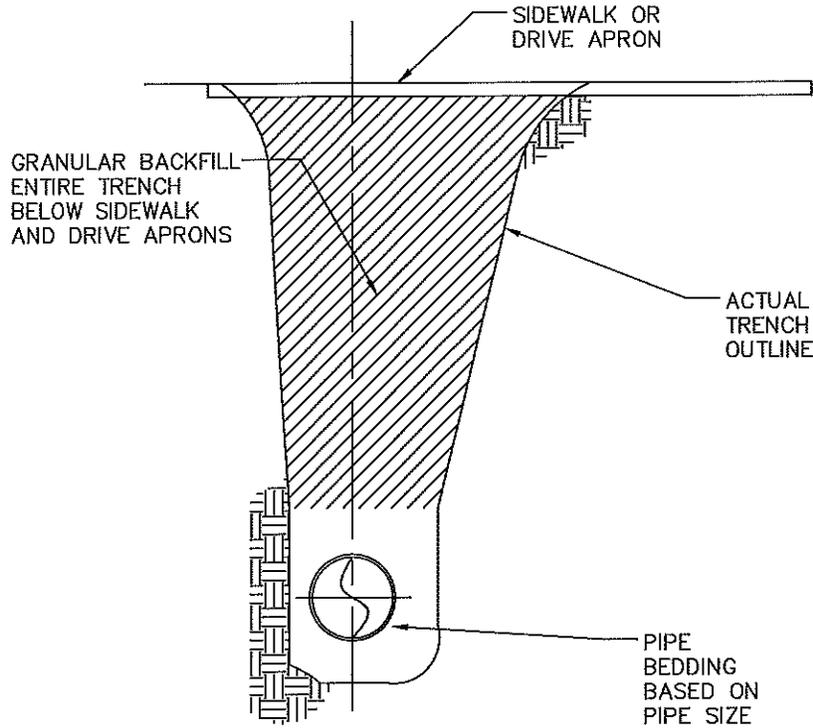
VILLAGE OF RICHFIELD
MANHOLE CULVERT DETAIL
REVISION: 3/10/16



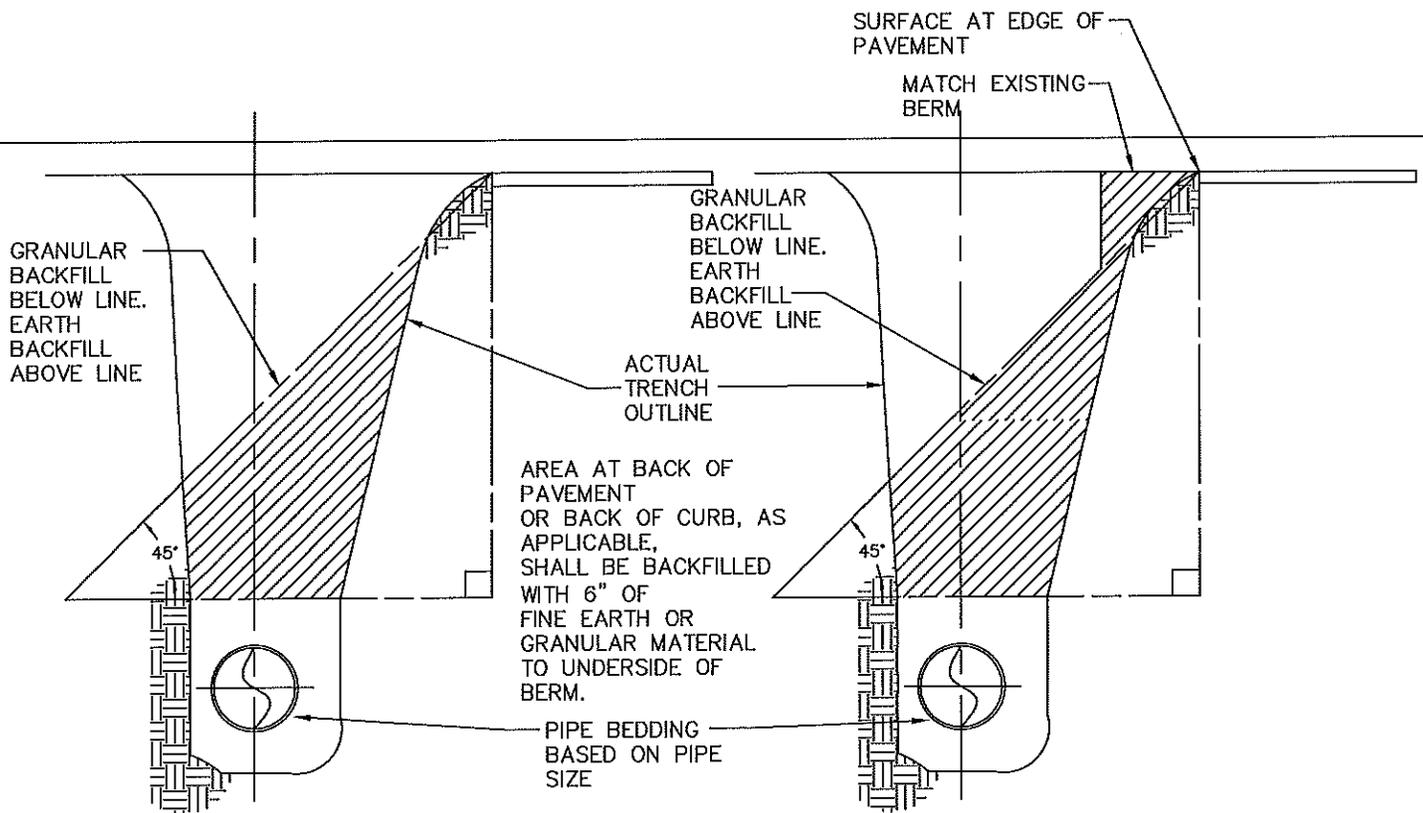
DROP CONNECTION OUTSIDE FOR PROPOSED MANHOLES



VILLAGE OF RICHFIELD
DROP MANHOLE DETAIL
REVISION: 3/10/16



SIDEWALK AND DRIVE APRONS



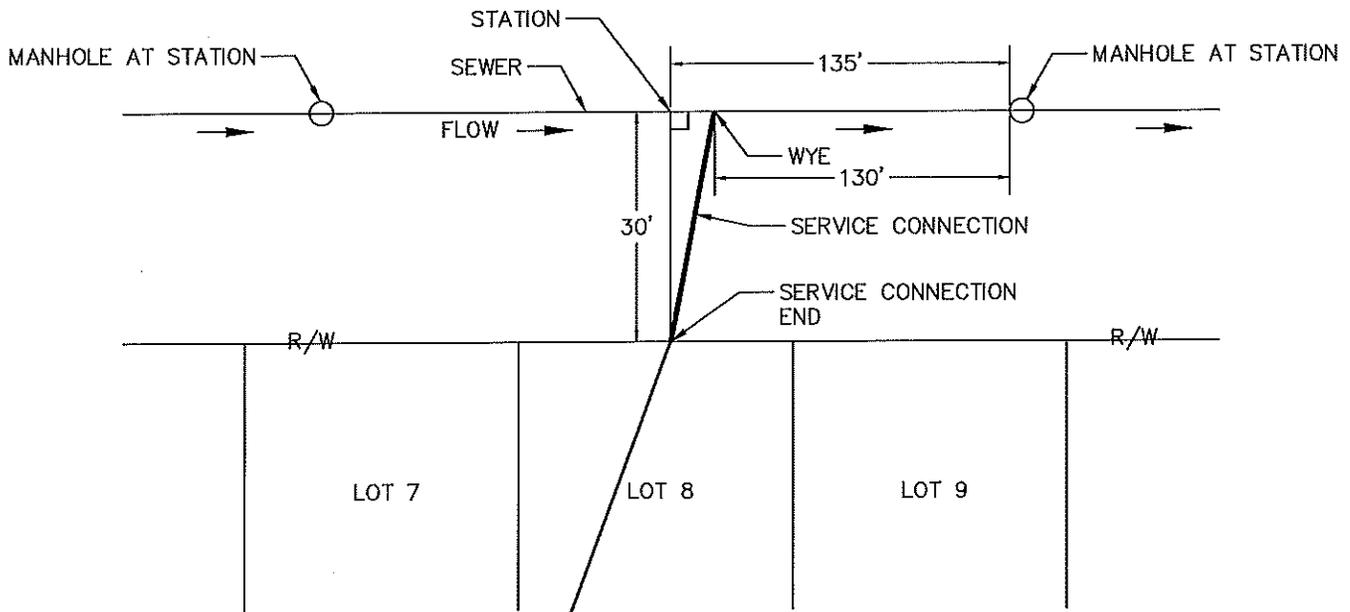
WITHOUT STONE BERM

WITH STONE BERM

GRANULAR BACKFILL DETAIL
NO SCALE



VILLAGE OF RICHFIELD
GRANULAR BACKFILL DETAIL
REVISION: 3/10/16



- A1
1. 130'
 2. 135'
 3. 30'
 4. 641.8

NOTE:

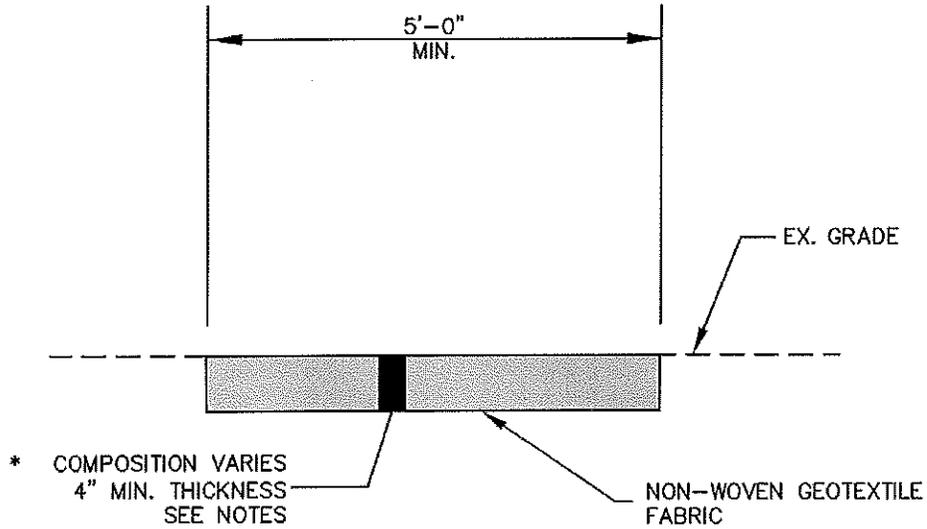
A1 = SERVICE CONNECTION NUMBER

- ① HORIZONTAL DISTANCE OF WYE TO DOWNSTREAM MANHOLE
- ② HORIZONTAL DISTANCE OF SERVICE CONNECTION END TO DOWNSTREAM MANHOLE ALONG SEWER.
- ③ PERPENDICULAR DISTANCE FROM SEWER TO SERVICE CONNECTION END.
- ④ ELEVATION OF SERVICE CONNECTION END FLOW LINE.

SERVICE CONNECTION LOCATION REFERENCE



VILLAGE OF RICHFIELD
SERVICE CONNECTION LOCATION
REVISION: 3/10/16



NOTES:

1. THIS DETAIL IS INTENDED TO BE UTILIZED AS A MEANDERING WALKING TRAIL OUTSIDE OF THE R/W AND IS NOT TO BE USED IN-LIEU OF SIDEWALK, OR WITHIN THE R/W.
2. THE PATH SHALL BE COMPOSED OF PERVIOUS MATERIALS AT THE APPROVAL OF THE VILLAGE SUCH AS: CRUSHED LIMESTONE, WOOD CHIPS, ASPHALT GRINDINGS, ETC.

WALKING PATH
N.T.S



VILLAGE OF RICHFIELD
WALKING PATH
REVISION: 3/10/16