A Division of Greater Cincinnati Water Works

CINCINNATI

STORMWATER

MANAGEMENT UTILITY

STANDARD DRAWING PACKAGE

REVISED – 4/20/2022

INDEX

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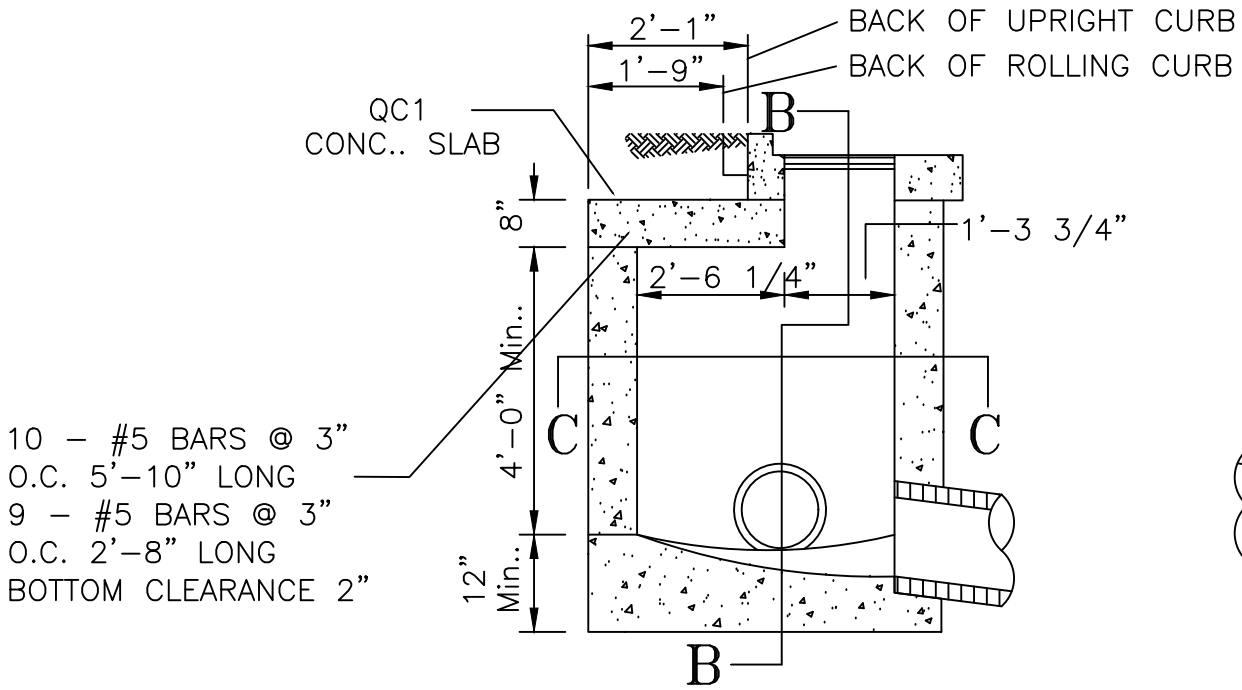

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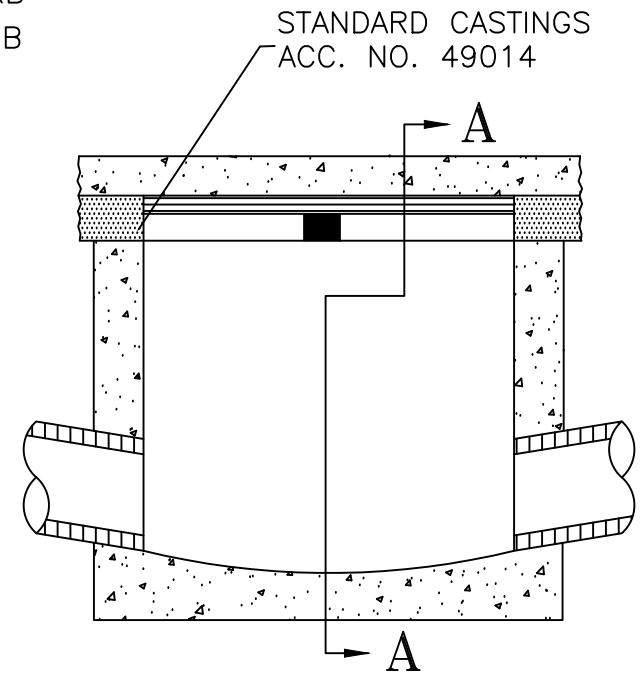

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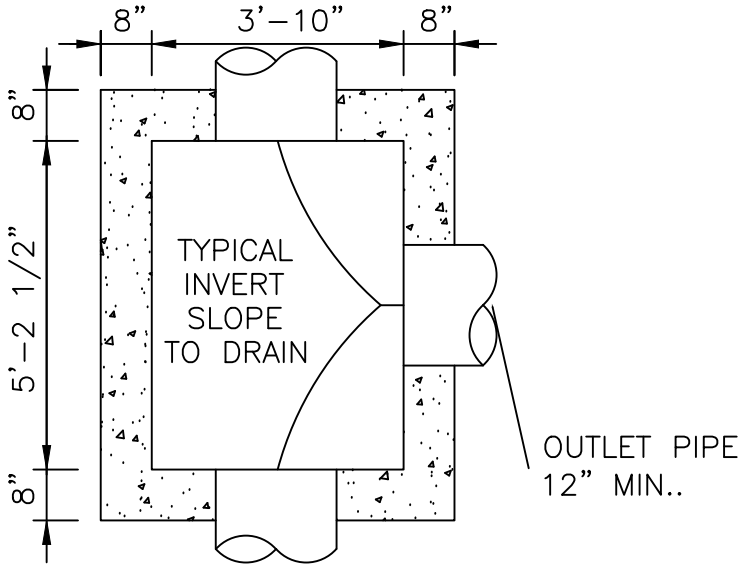


SECTION C–C

PAGE
1 OF 2

Revision
DATE:
04/13/2021

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Double Gutter Inlet MH (DGIMH) - 49010

Approved Eric Saylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS, City Supplement specifications, and SMU drawings.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Double Gutter Inlet Manhole

1. **Concrete slab shall be precast with lift holes 12" from each end. Mark top of slab.**

2. **Manhole inlet structures are to be used when there is a pipe flow into the structure.**

WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
8’ TO 12’	#5 @ 12”
12’ TO 16’	#5 @ 8”

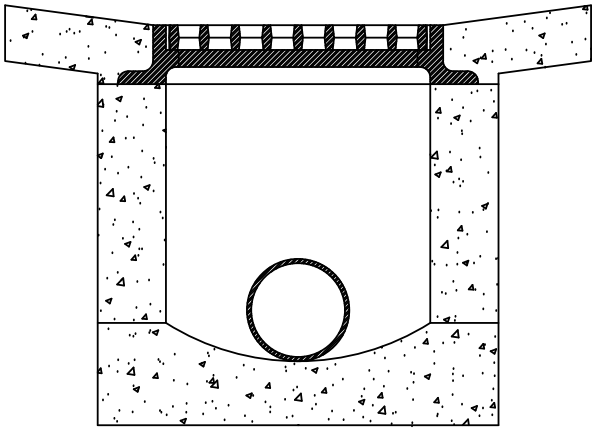
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Double Gutter Inlet MH (DGIMH) - 49010

Approved Eric Saylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021



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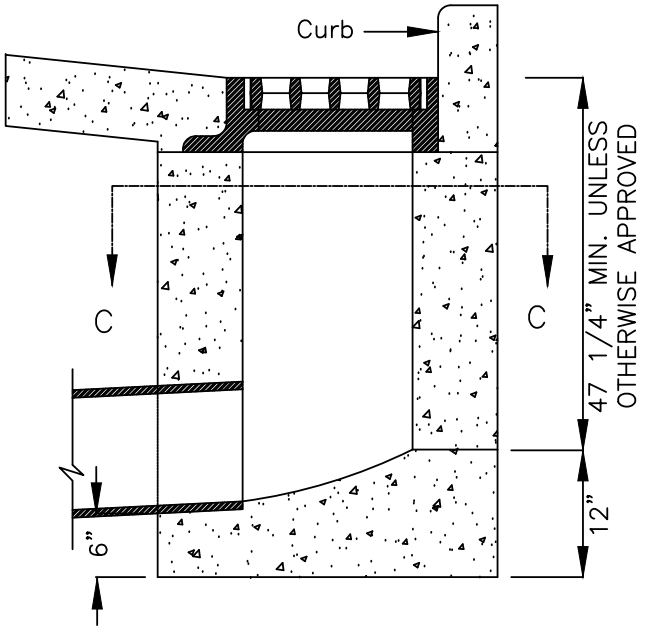

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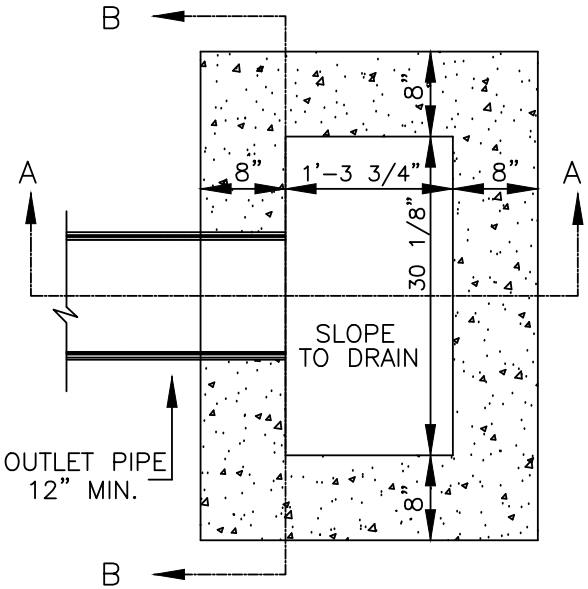


PLAN C–C

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Single Gutter Inlet (SGI) - 49011

Approved Eric Doyle

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2+/- feet apart horizontally in a 3 or 4 foot manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
8’ TO 12’	#5 @ 12”
12’ TO 16’	#5 @ 8”

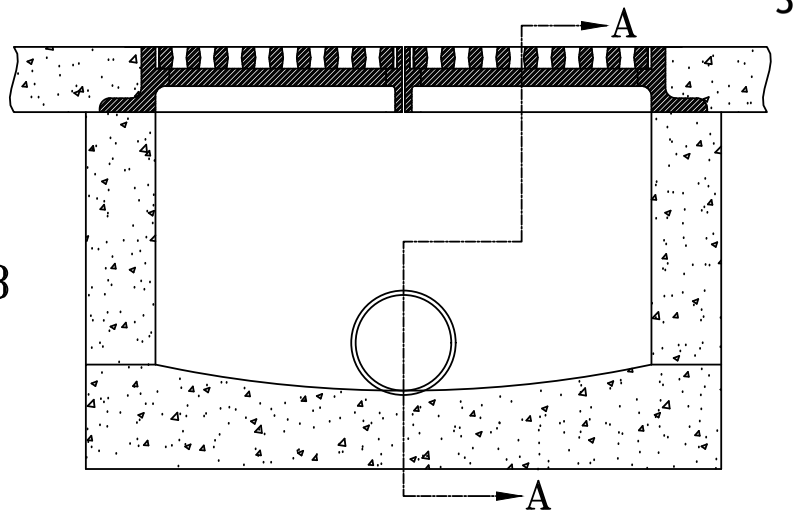
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Single Gutter Inlet (SGI) - 49011

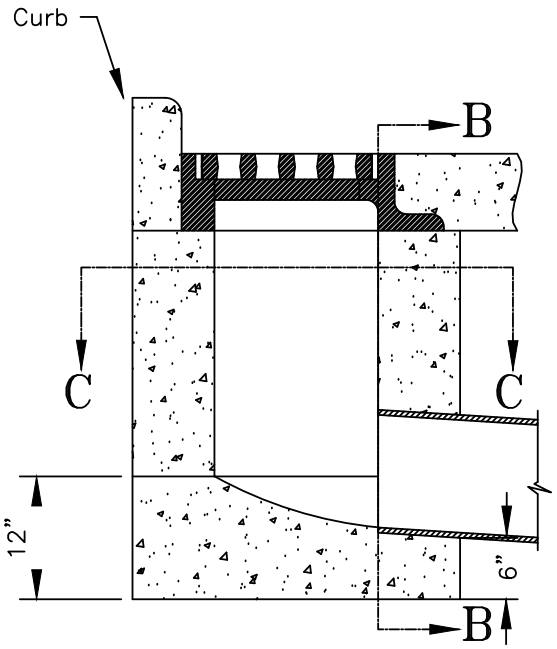
Approved Eric Dayton
City Stormwater Management Engineer

Revision
Date:
4/13/2021



SECTION B–B

For Standard
Castings see
Acc. No. 49014



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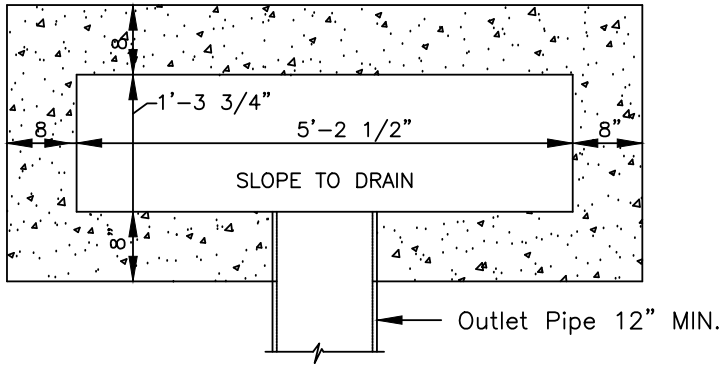


SECTION C–C

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Double Gutter Inlet (DGI) - 49013

Approved Eric Taylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

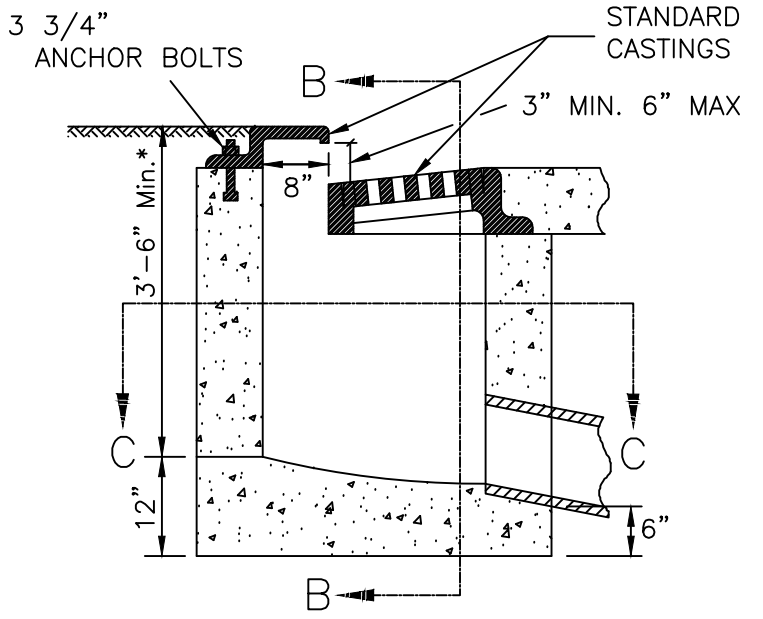
WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
8’ TO 12’	#5 @ 12”
12’ TO 16’	#5 @ 8”

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Double Gutter Inlet (DGI) - 49013

Approved Eric Taylor
City Stormwater Management Engineer



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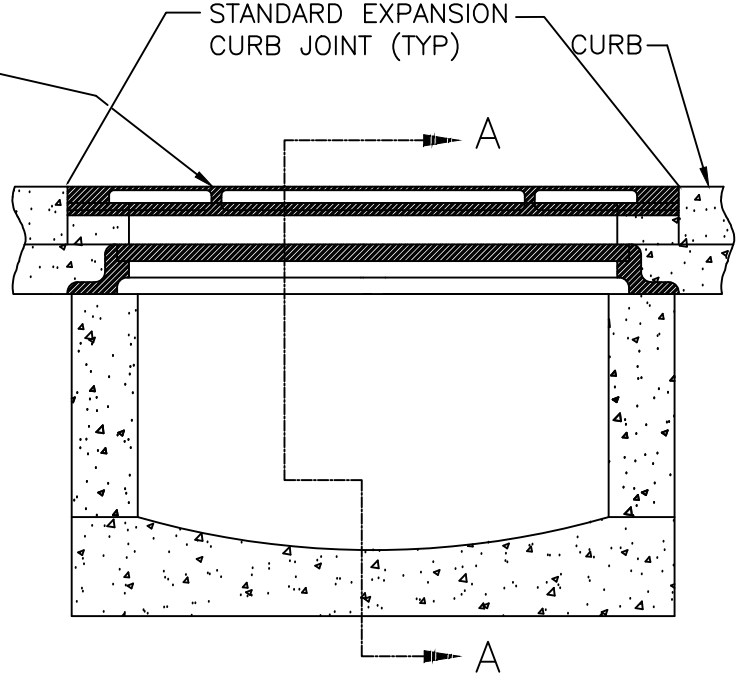
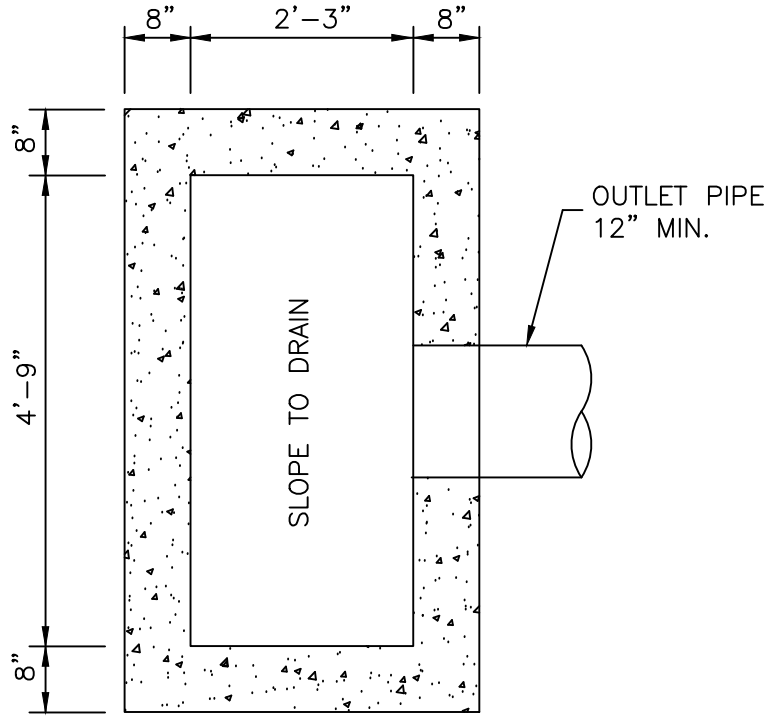


SECTION A–A



PLAN C–C

Revision
DATE:
04/13/2021

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Combination Inlet (CI) - 49016

Approved Eric Dayton
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
8’ TO 12’	#5 @ 12”
12’ TO 16’	#5 @ 8”

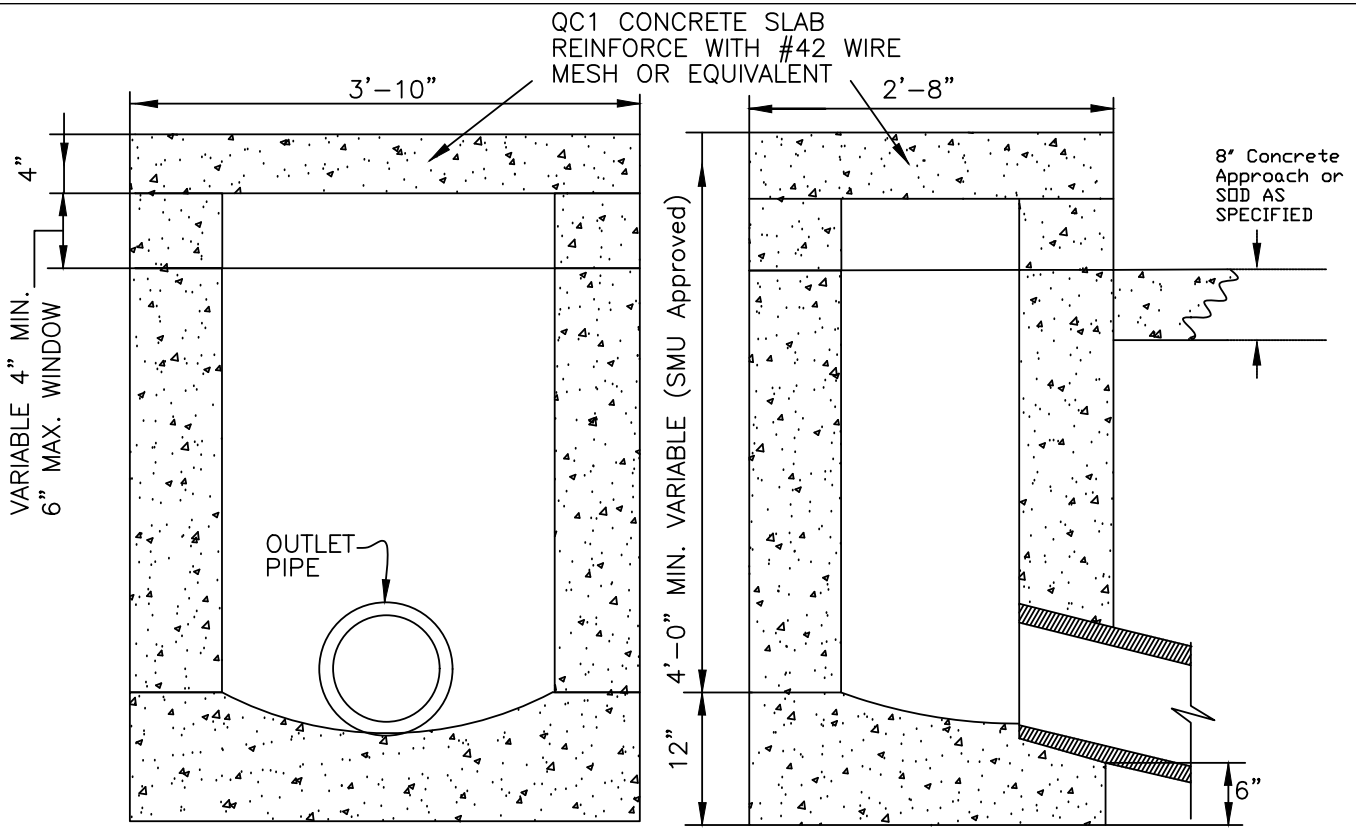
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Combination Inlet (CI) - 49016

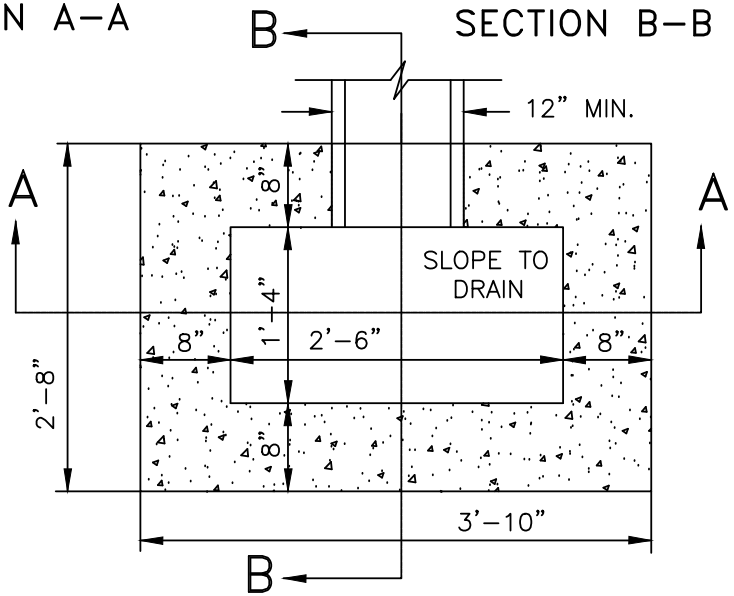
Approved Eric Dayton
City Stormwater Management Engineer

Revision
DATE:
04/13/2021



SECTION A–A

SECTION B–B



PLAN VIEW
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A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Ditch Inlet (DI) - 49023

Approved Eric Daylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard Ditch Inlet

1. **The inlet is shown open on four sides. Any of these sides may be closed at the direction of SMU.**

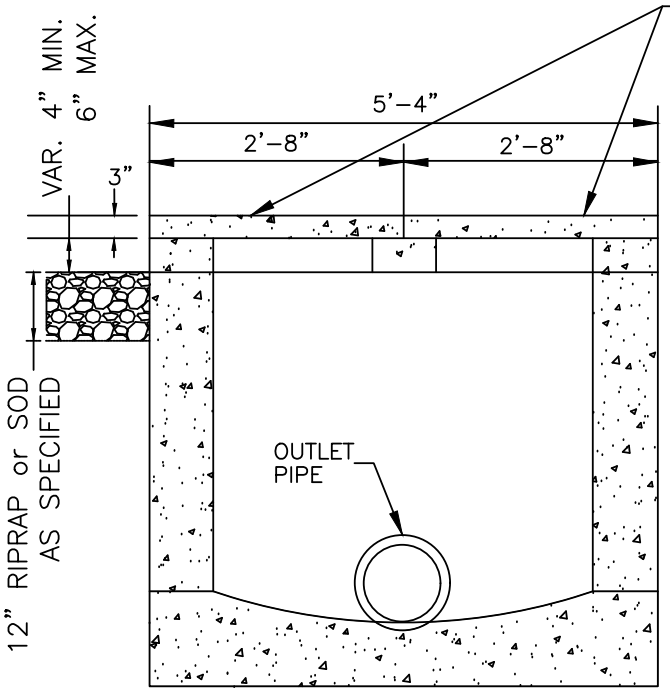
WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
8’ TO 12’	#5 @ 12”
12’ TO 16’	#5 @ 8”

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Ditch Inlet (DI) - 49023

Approved Eric Saylor
City Stormwater Management Engineer



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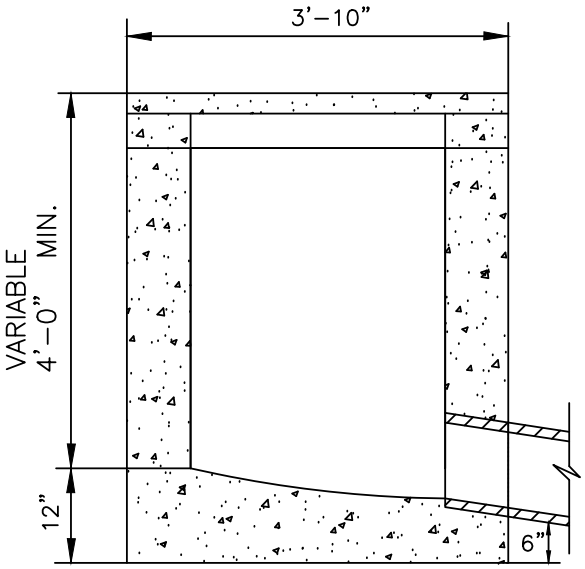

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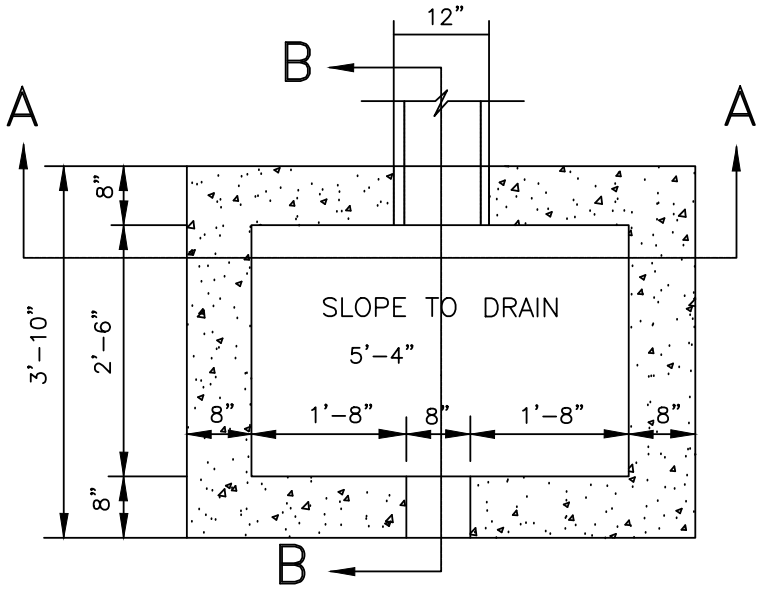

PLAN VIEW
WITH TOPS REMOVED

PAGE
1 OF 2

Revision
DATE:
04/13/2021

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Double Ditch Inlet (DDI) - 49024

Approved Eric Taylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
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22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Double Ditch Inlet

1. **The inlet is shown open on four sides. Any of these may be closed as directed by SMU.**

WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
8’ TO 12’	#5 @ 12”
12’ TO 16’	#5 @ 8”

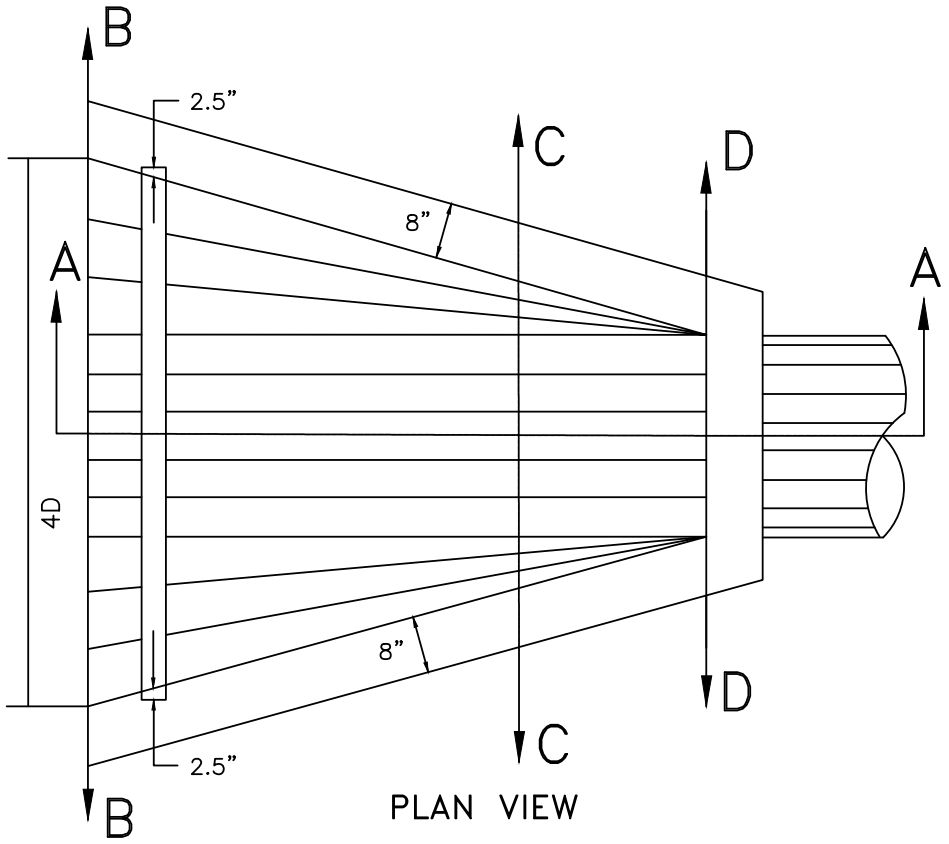
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

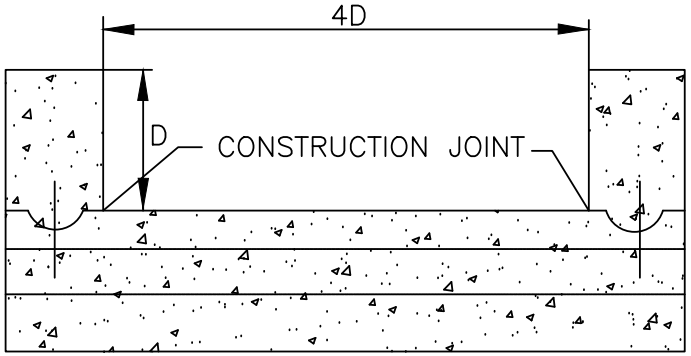
Double Ditch Inlet (DDI) - 49024

Approved Eric Taylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021



PLAN VIEW



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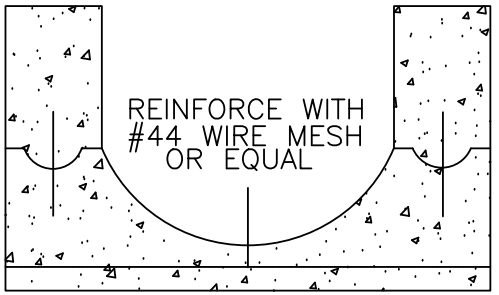
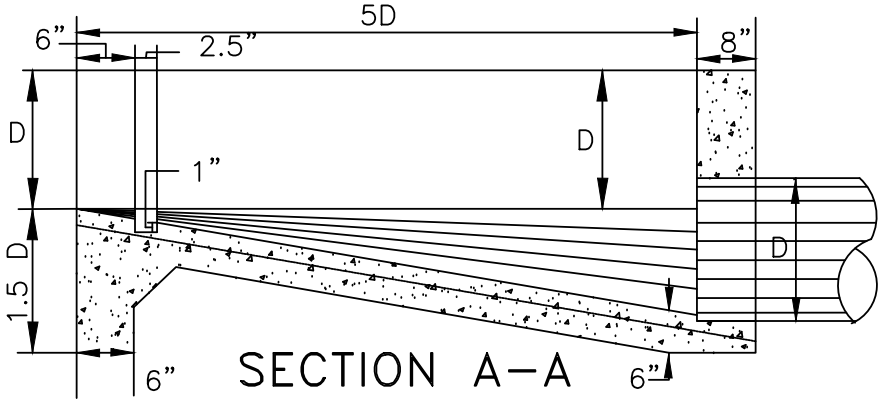
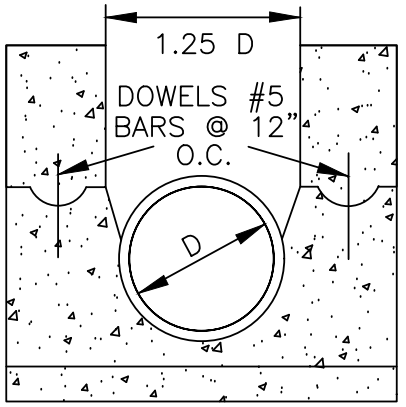


SECTION C–C



SECTION A–A



SECTION D–D

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Wingwall Intake - 49025

Approved Eric Dayton
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

A Division of Greater Cincinnati Water Works

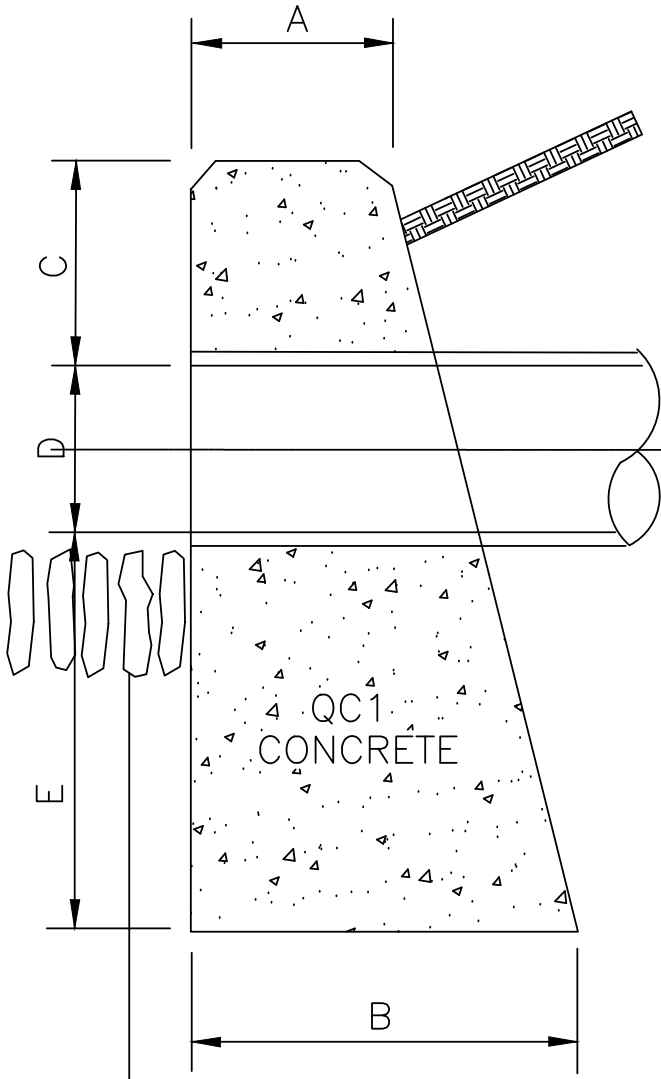
CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Wingwall Intake - 49025

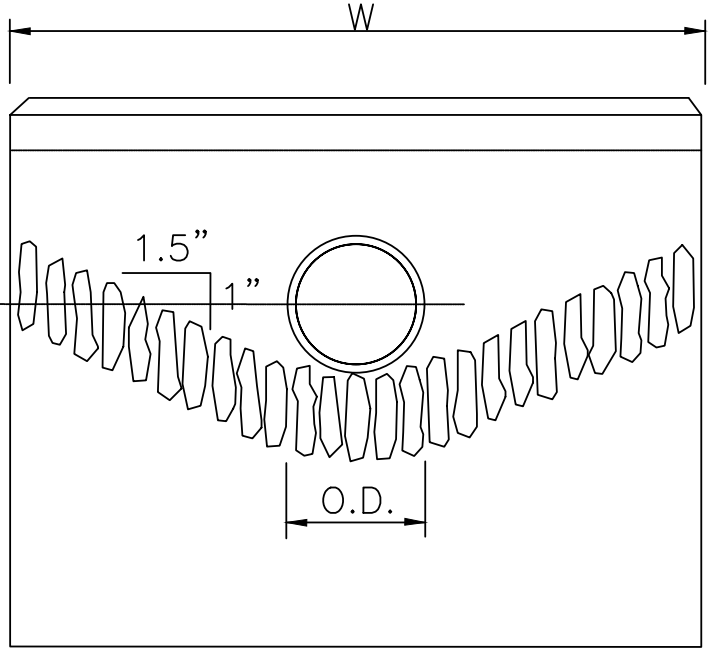
Approved Eric Dayton

City Stormwater Management Engineer

Revision
Date:
4/13/2021



RIP RAP IN ACCORDANCE WITH
ODOT/ SMU SPECIFICATIONS



ENTIRE STRUCTURE
MAY VARY DEPENDING ON FIELD
CONDITIONS PER SMU APPROVAL.

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Typical Headwall - 49030

Approved Eric Doyle
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Typical Headwall

1. Additional Footer may be required by SMU
2. Slope range behind Headwall will be no greater than 2 to 1 without SMU approval

SIZE D	A	B	C	E	W	C.Y. CONC.
12”	1’–0”	2’–0”	1’–0”	2’–0”	5’–0”	1.0
15”	1’–0”	2’–3”	1’–0”	2’–3”	6’–0”	1.5
18”	1’–0”	2’–6”	1’–0”	2’–6”	7’–0”	2.1
21”	1’–0”	2’–10”	1’–1”	2’–10”	8’–0”	3.2
24”	1’–0”	3’–1”	1’–1”	3’–1”	9’–0”	4.1
30” & OVER – SPECIAL DESIGN						

A Division of Greater Cincinnati Water Works

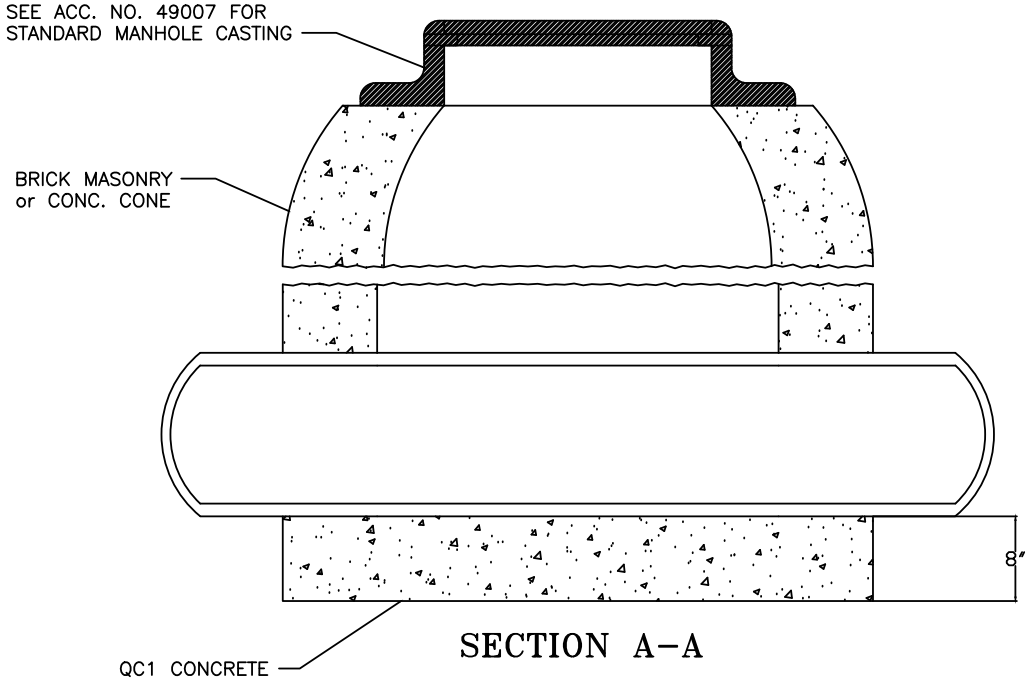
CINCINNATI STORMWATER MANAGEMENT UTILITY

Typical Headwall - 49030

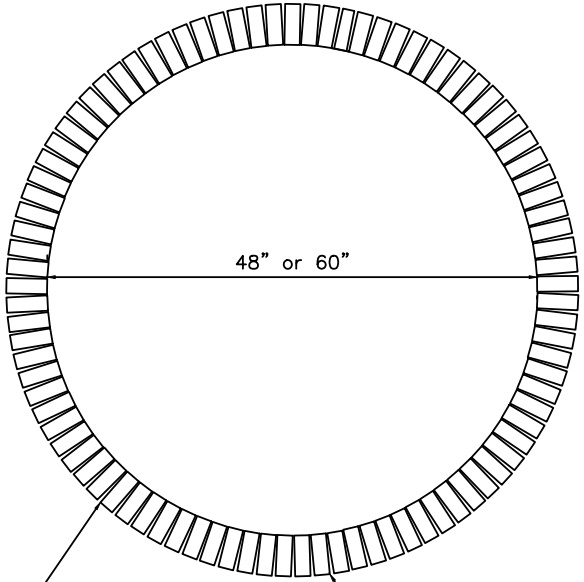
Approved Eric Taylor
City Stormwater Management Engineer

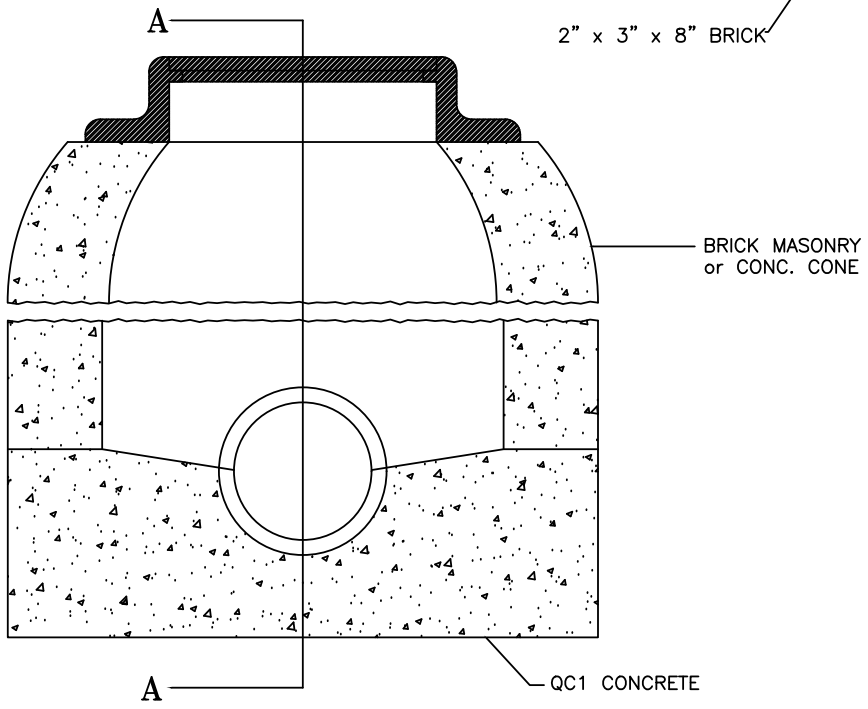
Revision
Date:
4/13/2021

BRICK MASONRY CONSTRUCTION



SECTION A–A





A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Manhole (Type B) - 49038

Approved Eric Taylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

A Division of Greater Cincinnati Water Works

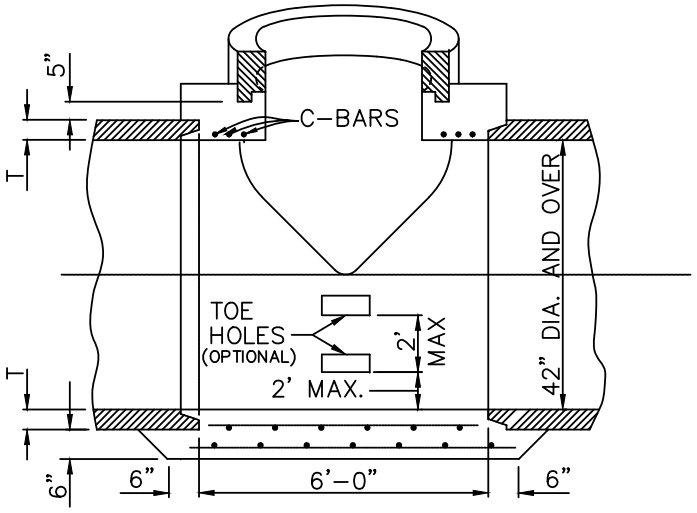
CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Manhole (Type B) - 49038

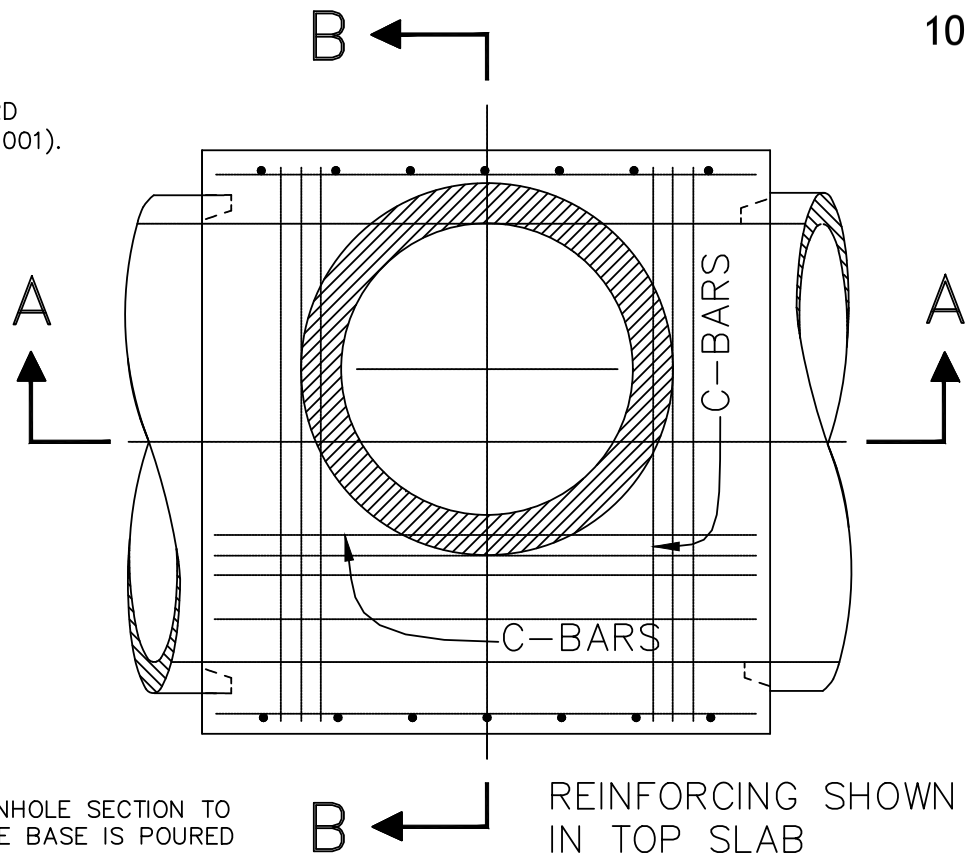
Approved Eric Saylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021

USE SAME BARREL AND CONE AS SHOWN FOR STANDARD MANHOLES ON CONDUITS 42" AND UNDER (ACC. NO. 49001).

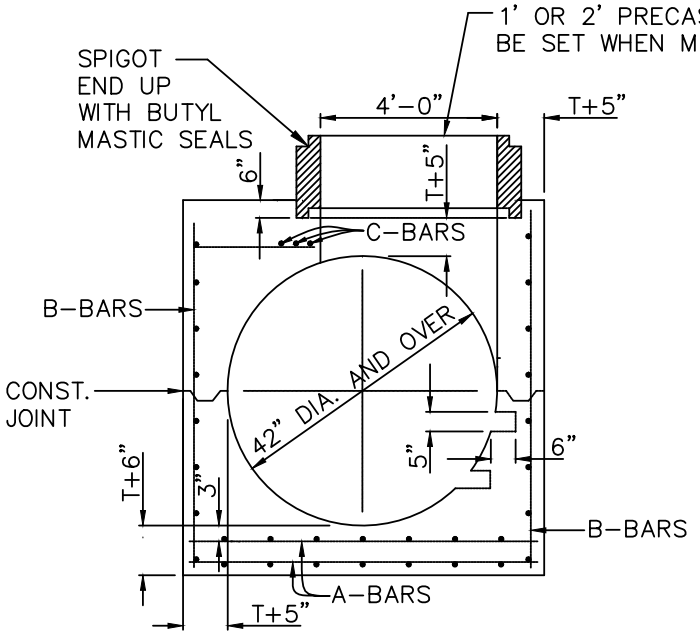


SECTION A-A



REINFORCING SHOWN IN TOP SLAB

PLAN



SECTION B-B

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Manhole on Conduits 42" and Above - 49040

Approved Eric Dayton
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
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15. For standard casting, see Acc. # 49017.
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20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard Manhole on Conduits 42" and Above

1. ALL CONCRETE SHALL BE QC1.
2. ALL STEEL SHALL HAVE 2” COVER EXCEPT WHERE NOTED.
3. LONGITUDINAL STEEL – NO. 5 BARS @ 18” O.C.
4. A AND B BARS – 12” O.C. AS SHOWN.
5. C BARS – 3” O.C. AS SHOWN.
6. A, B AND C BARS –
7. #5 BARS ON 48” TO 60” SEW.
8. #6 BARS ON 66” TO 78” SEW.
9. #7 BARS ON 84” TO 108” SEW.

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Manhole on Conduits 42" and Above - 49040

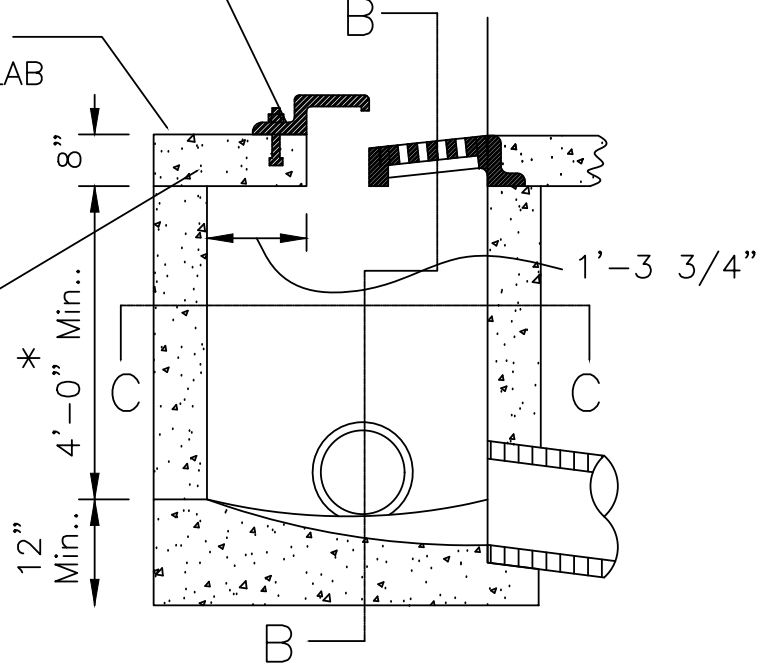
Approved Eric Dayton
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

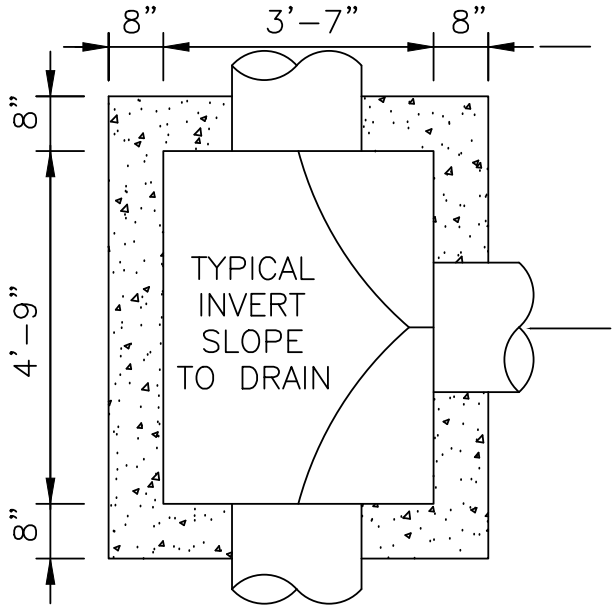
CAST–IN–PLACE
3–3/4" X 6"
ANCHOR BOLTS.

QC1
CONC.. SLAB

10 – #5 BARS @ 3"
O.C. 5'–10" LONG
9 – #5 BARS @ 3"
O.C. 2'–8" LONG
BOTTOM CLEARANCE 2"



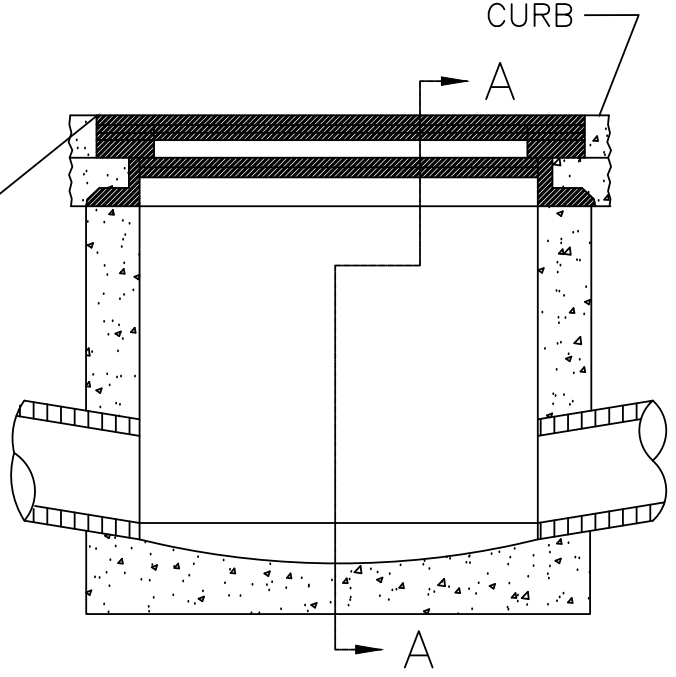
SECTION A–A



SECTION C–C

CURB

STANDARD EXPANSION
CURB JOINT (TYP)



SECTION B–B

A Division of Greater Cincinnati Water Works
CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Combination Inlet MH (CIMH) - 49041

Approved Eric Dayton
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
>8’ TO 12’	#5 @ 12”
>12’ TO 16’	#5 @ 8”

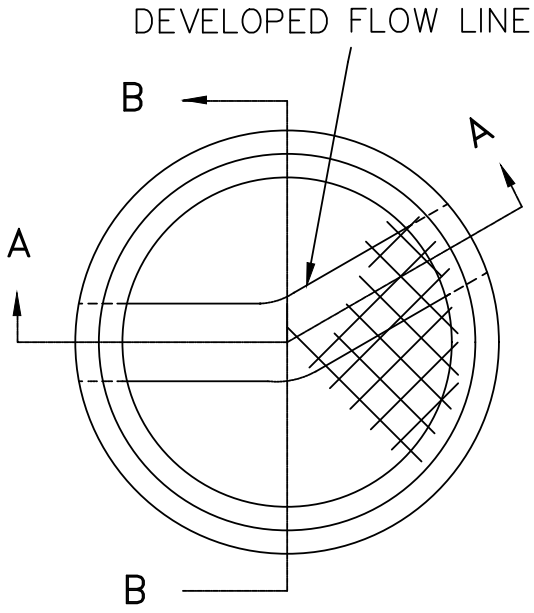
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Combination Inlet MH (CIMH) - 49041

Approved Eric Dayton
City Stormwater Management Engineer

Revision Date: 4/13/2021



PLAN

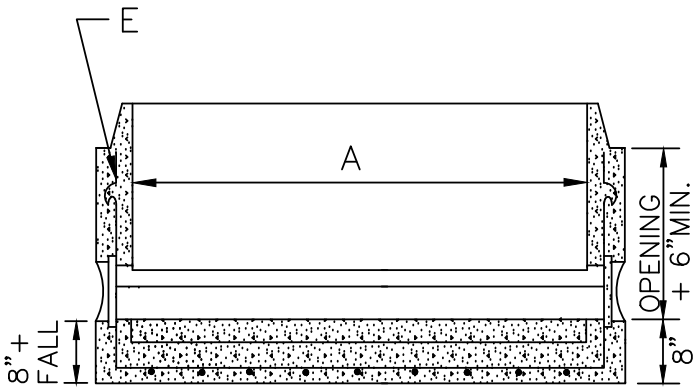
MANHOLE BASE

PIPE DIAMETER	DIMENSION			
	A	B	C	D
8"THRU 18"	48"	5"	2"–3"	UP TO 1 1/2"
21"& 24"	48"	5"*	2"–3"	"
	60"	6"*	2"–3"	"
27" – 36"	60"	6"	2"–3"	UP TO 1 1/2"

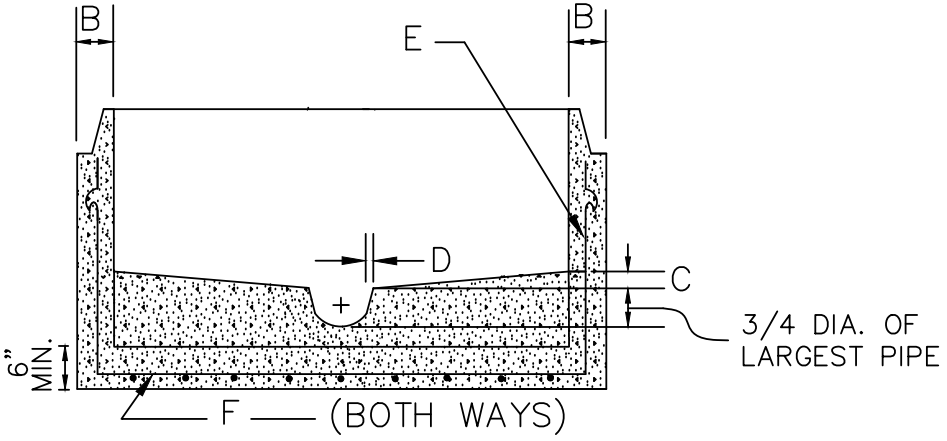
* MOVEABLE PANEL CONSTRUCTION MAY BE USED PROVIDING 5"MIN.THICKNESS PROVIDED.

REINFORCEMENT STEEL
PER A.S.T.M. C478

DIAMETER	REINFORCING ITEM	
	E	F
48"	A_s = 0.12 SQ. IN./FT. (CIRCUMFERENTIAL)	A_s = 0.12 SQ. IN./FT. (BOTH WAYS)
60"	A_s = 0.15 SQ. IN./FT. (CIRCUMFERENTIAL)	A_s = 0.12 SQ. IN./FT. (BOTH WAYS)



SECTION A–A



SECTION B–B

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Pre-Cast Concrete Manhole Base - 49056

Approved Eric Dayton

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard Pre-Cast Concrete Manhole Base

1. PRECAST MANHOLE BASE MAY BE USED ON 8”TO 36”CONDUIT UNLESS OTHERWISE NOTED ON THE PLANS.
2. PRECAST MANHOLE BASE SHALL NOT BE USED IF THE GRADE OF THE INFLUENT OR EFFLUENT CONDUIT EXCEEDS 10%, UNLESS THE SEAL BETWEEN THE PRECAST MANHOLE BASE AND INFLUENT AND/OR EFFLUENT LINES IS CAST IN A SKEW TO ACCEPT LARGER GRADES.
3. ALL MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 706.13 OF THE STATE OF OHIO SPECIFICATIONS EXCEPT AS OTHER-WISE NOTED HEREIN.
4. ALL CONCRETE SHALL BE QC1.
5. THE GASKET BETWEEN THE PRECAST MANHOLE BASE AND THE MANHOLE RISERS SHALL MEET THE REQUIREMENTS OF A.S.T.M. C-443, EXCEPT THAT ONLY ”O” RING AND PROFILE GASKETS ARE ACCEPTABLE.
6. THE SEAL BETWEEN PRECAST MANHOLE BASE AND INFLUENT AND/OR EFFLUENT CONDUIT SHALL BE A RUBBER GASKET, ”A-LOK”, ”KOR-N-SEAL”,”DURA-SEAL” OR AN APPROVED EQUAL.
7. OPENINGS FOR INFLUENT AND EFFLUENT CONDUIT SHALL BE PROVIDED TO MEET THE PROJECT REQUIREMENTS.
8. THE PRECAST BASE SHALL HAVE THE FLOOR AND SIDE WALL CAST AS ONE UNIT;
9. IF THE FLOW LINE (CHANNEL) AND BENCHES ARE NOT CAST AS A PART OF FLOOR AND SIDE WALL, THEY SHALL BE CAST OF CONCRETE AT THE PLACE OF MANUFACTURE.
10. LIFT HOLES IN PRECAST MANHOLE BASE TO BE SEALED WITH HYDRAULIC CEMENT AND THE EXTERIOR COATED WITH A BITUMINOUS PAINT.
11. ALL CHARACTERISTICS NOT SHOWN HERE IN SHALL BE SIMILAR TO STANDARD MANHOLE ACC. NO. 49038 & 120354.
12. PRECAST MANHOLE BASES SHALL BE INSTALLED ON A 6” MINIMUM GRAVEL BASE (#57 CLEAN WASHED).

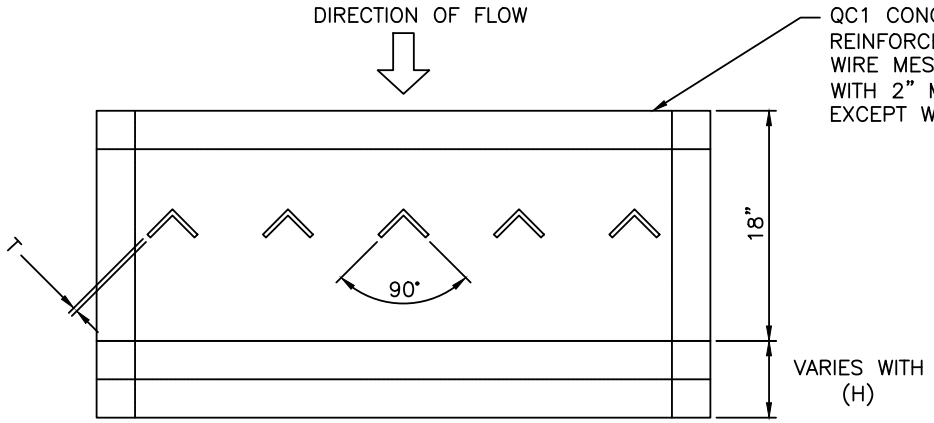
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

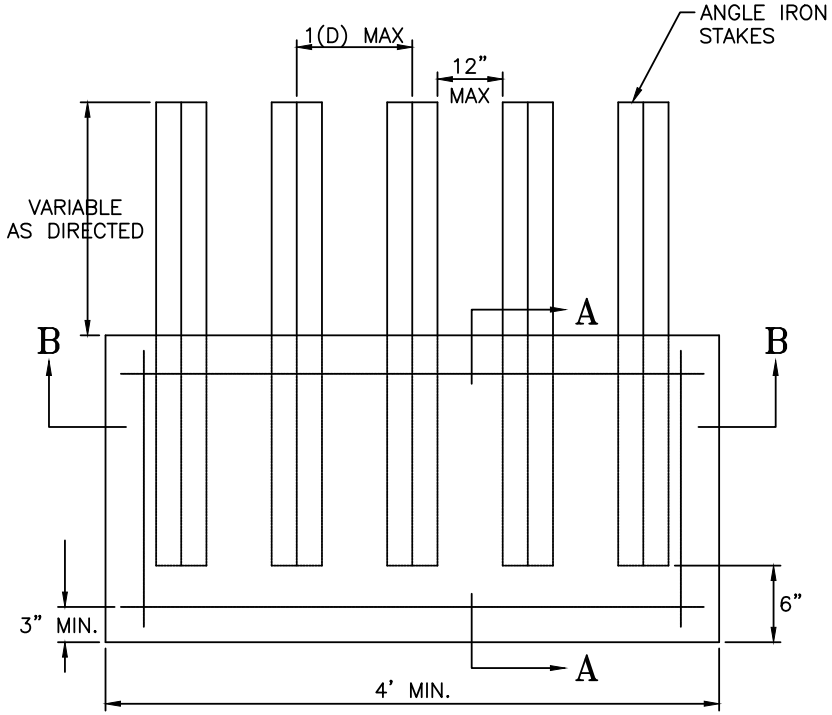
Standard Pre-Cast Concrete Manhole Base - 49056

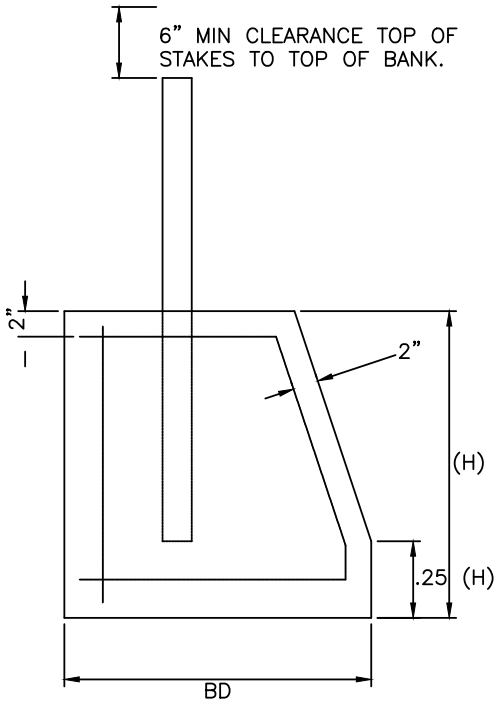
Approved Eric Dayton
City Stormwater Management Engineer

Revision
Date:
4/13/2021



SECTION B–B





SECTION A–A

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Typical Intake Trash Rack - 120090

Approved Eric Doyle

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Typical Intake Trash Rack

1. ALL ANGLES – A36 GALVANIZED STEEL.
2. TOP OF CONCRETE ANCHOR SET AT CREEK BED ELEVATION.
3. ALL ANGLES ARE 90° BD (BASE DIMENSION) SHALL EQUAL HEIGHT (H) OF CONCRETE ANCHOR (D) INDICATES INTAKE CONDUIT SIZE. CROSSBARS AS DIRECTED.

ANGLE IRON STAKES			
CONDUIT SIZE (D)	SIZE	HEIGHT (H)	THICKNESS (T)
12”	3” X 3”	24”	3/8”
15”	3” X 3”	24”	3/8”
18”	3” X 3”	38”	3/8”
24” AND OVER	5” X 5”	48”	1/2”

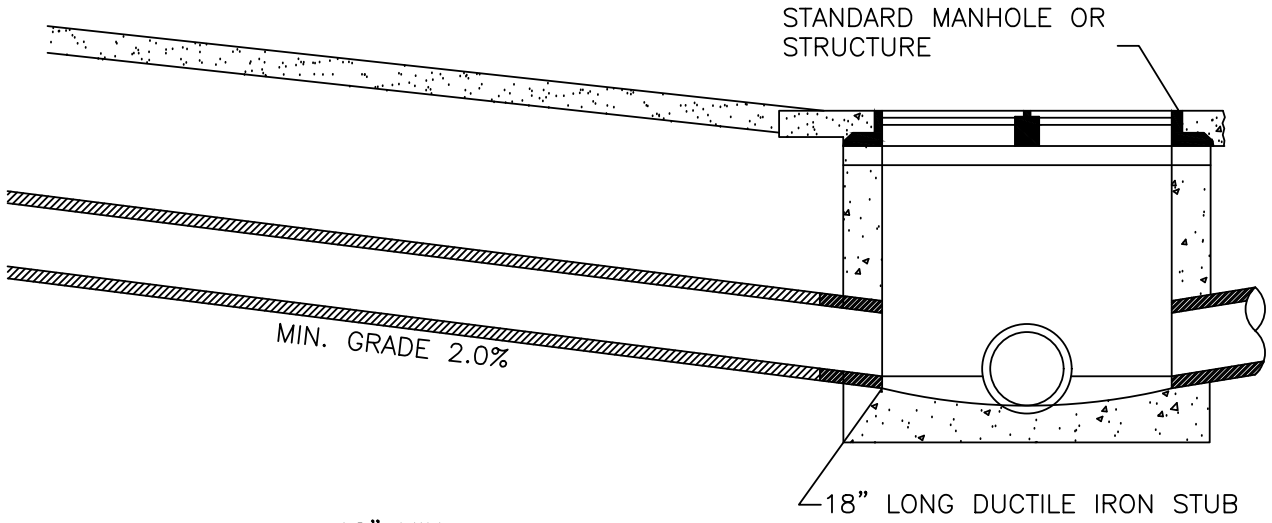
A Division of Greater Cincinnati Water Works

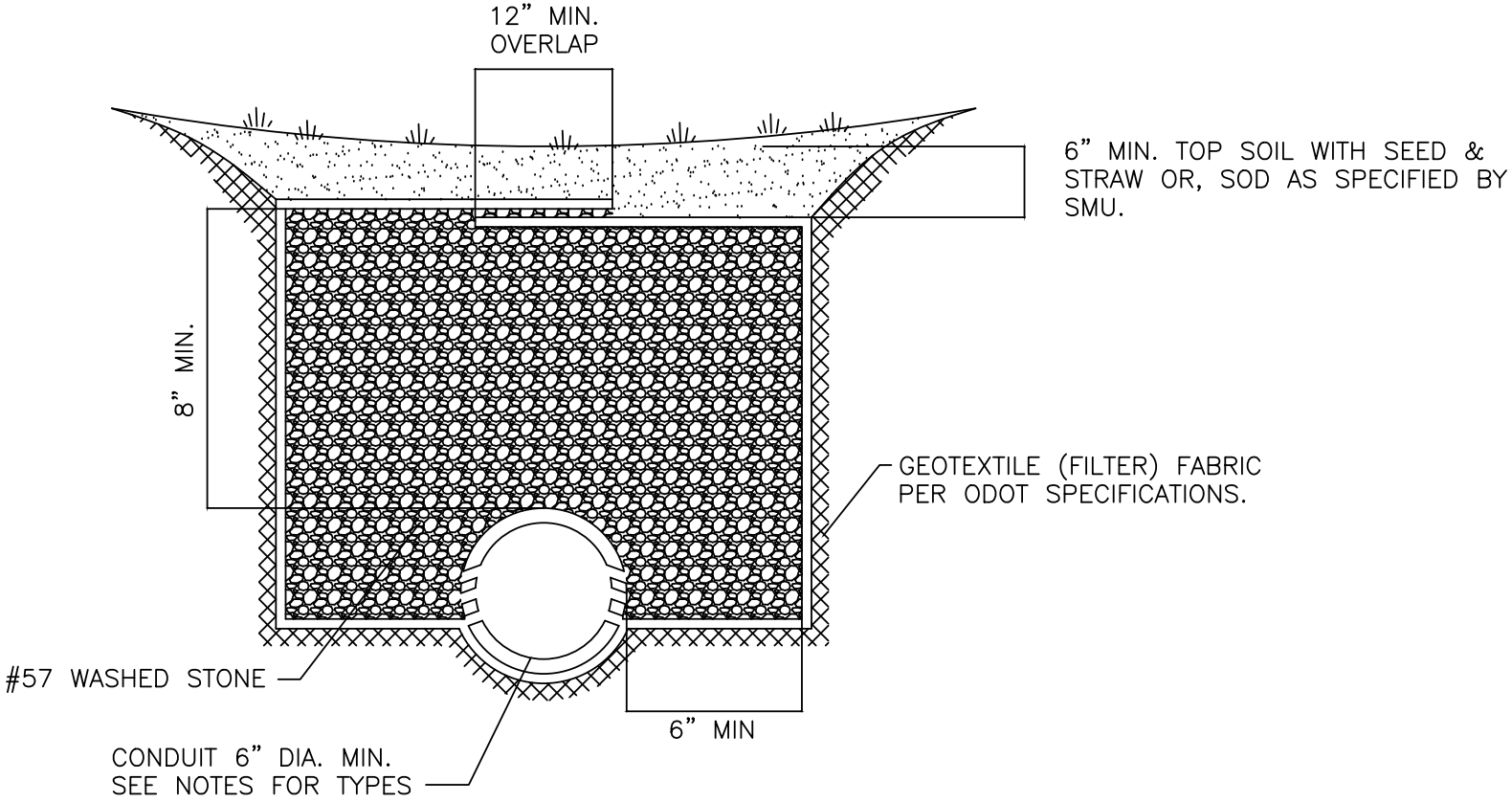
CINCINNATI STORMWATER MANAGEMENT UTILITY

Typical Intake Trash Rack - 120090

Approved Eric Dayton
City Stormwater Management Engineer

Revision
Date:
4/13/2021





CINCINNATI STORMWATER MANAGEMENT UTILITY

A Division of Greater Cincinnati Water Works

Standard Perforated Under Drain Outside of Right of Way - 120091

Approved Eric Dayton

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard Perforated Under Drain Outside of Right-of-Way

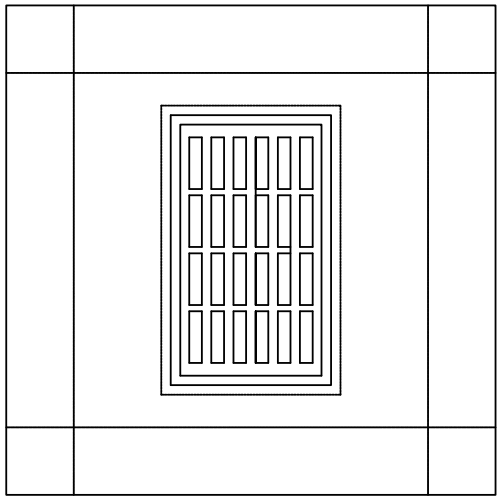
1. THIS IS ONLY PERMITTED OUTSIDE OF PAVED RIGHT–OF–WAY.
2. CONDUIT SHALL BE PERFORATED CORRUGATED HDPE WITH A SOCK AND ACCORDING TO ODOT SPECIFICATIONS.
3. SEE ACC. NO. 120340 FOR APPROACH CONNECTION.
4. A CLEANOUT IS REQUIRED IF NO STRUCTURE IS AT THE UPSTREAM END.
5. SIZE AS SPECIFIED BY THE ENGINEER.

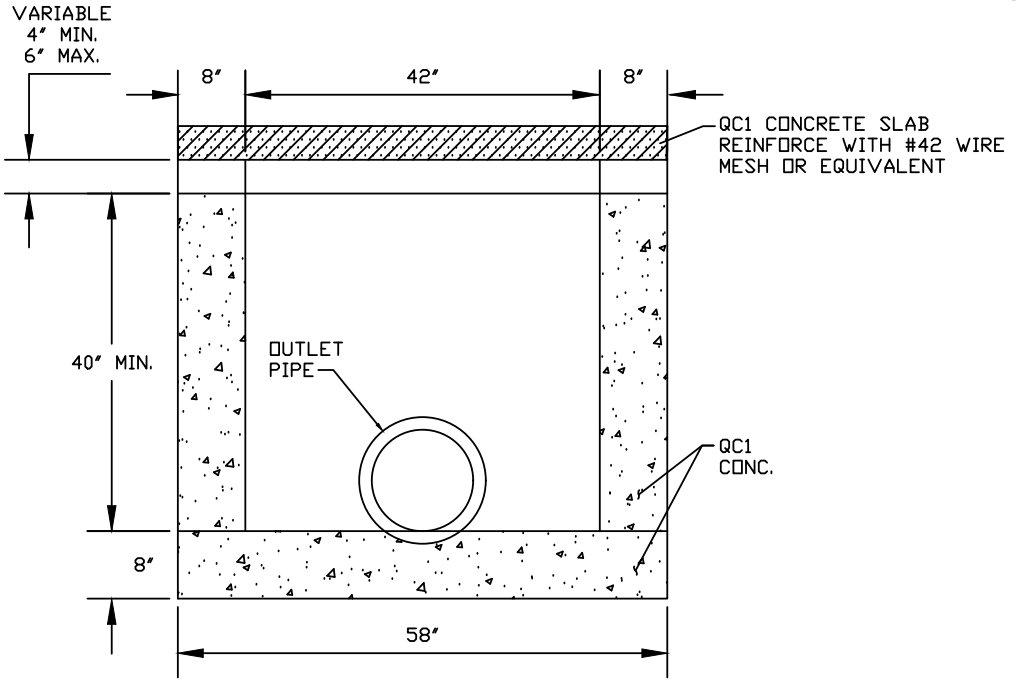
A Division of Greater Cincinnati Water Works

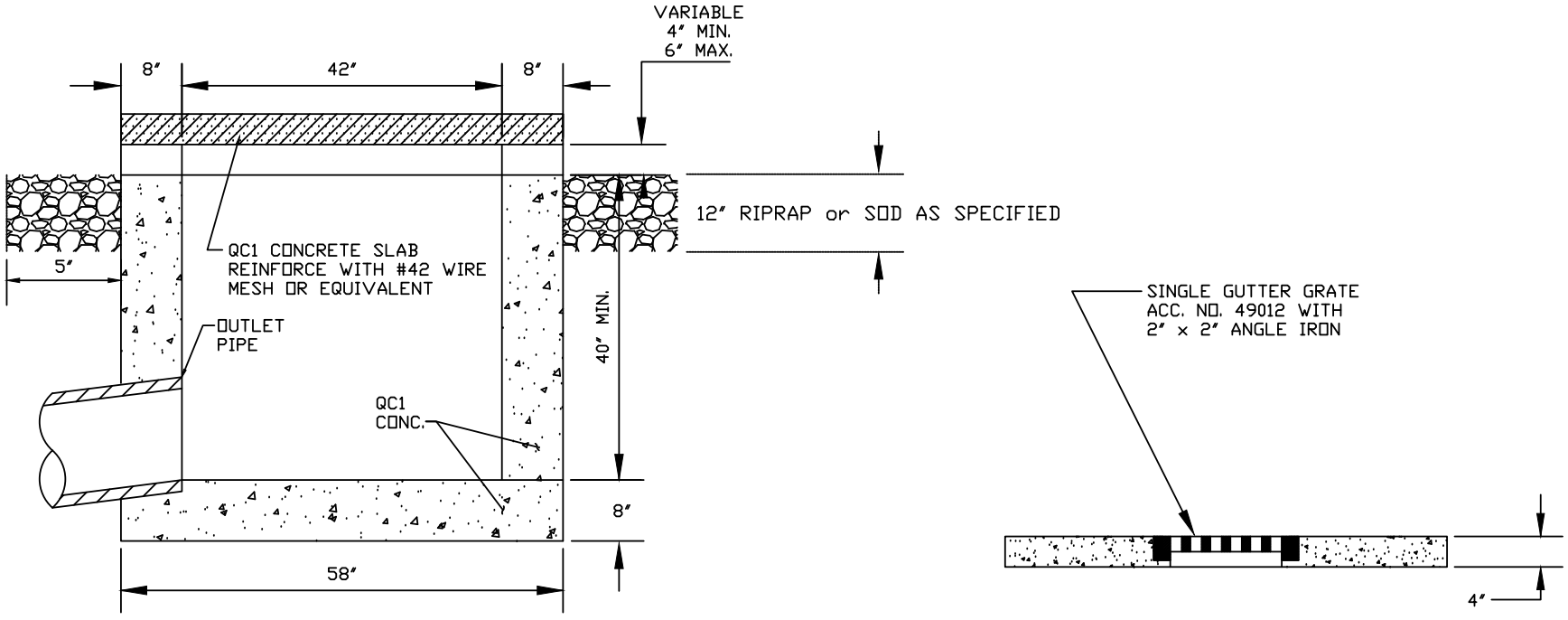
CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Perforated Under Drain Outside of Right of Way - 120091

Approved Eric Dayton
City Stormwater Management Engineer







Revision
Date:
4/13/2021

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Ditch Inlet Manhole Type B - 120283

Approved Eric Taylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Ditch Inlet Manhole Type B

WALL HORIZONTAL REINFORCING STEEL	
DEPTH	BAR SPACING
4’ TO 8’	#5 @ 16”
>8’ TO 12’	#5 @ 12”
>12’ TO 16’	#5 @ 8”

A Division of Greater Cincinnati Water Works

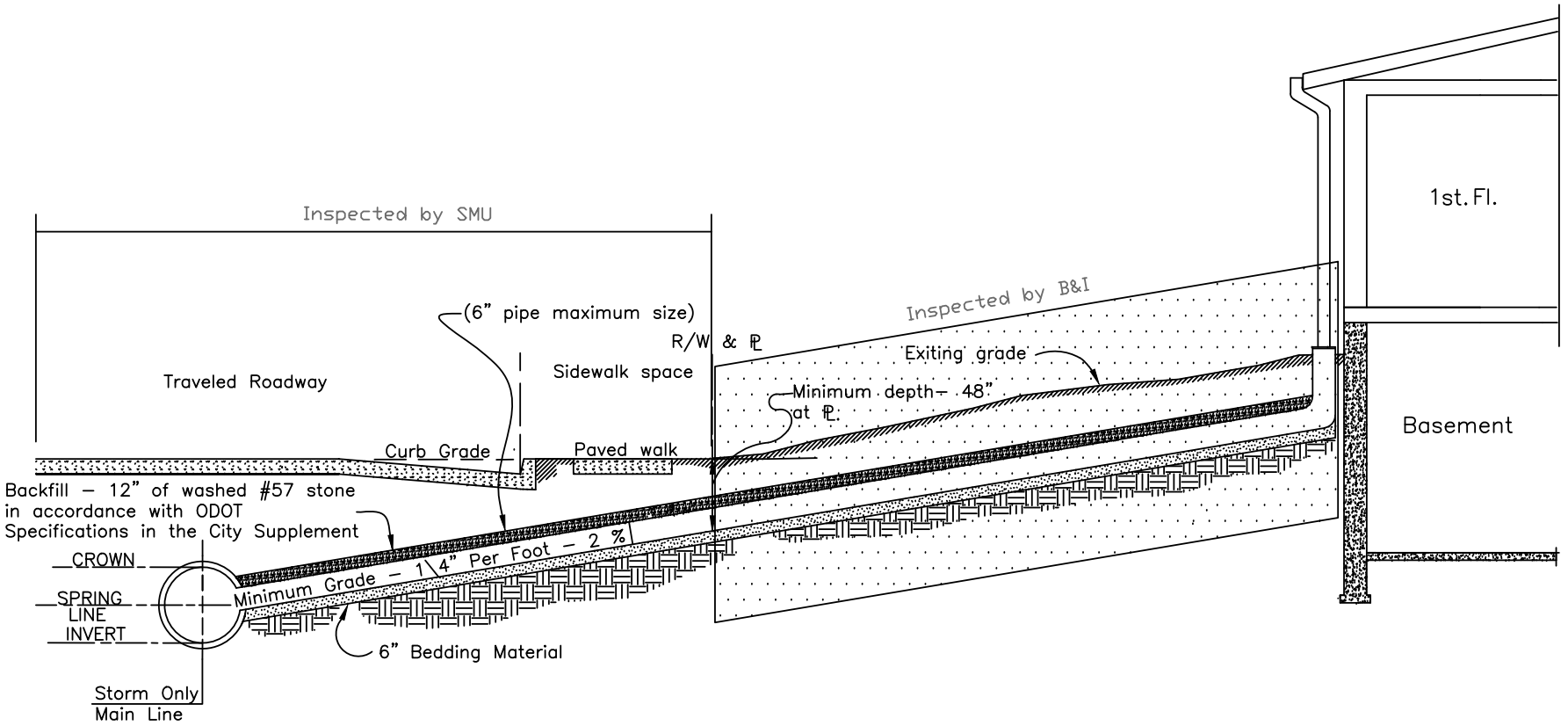
CINCINNATI STORMWATER MANAGEMENT UTILITY

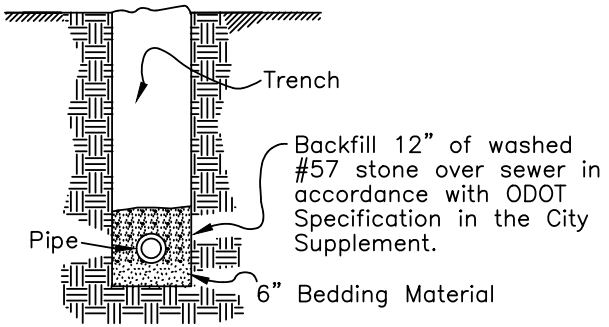
Ditch Inlet Manhole Type B - 120283

Approved Eric Taylor

City Stormwater Management Engineer

Revision
DATE:
04/13/2021





A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Typical Installation of Building Storm Sewer - 120309

Approved Eric Dayton
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Typical Installation of Building Storm Sewer

1. **Connections to the SMU truck sewer shall be made via "insert a tee" or approved equal.**
2. **Connections to the SMU trunk sewer must be made above the spring line.**
3. **Reference SMU's current approved pipe policy for a list of approved materials.**

A Division of Greater Cincinnati Water Works

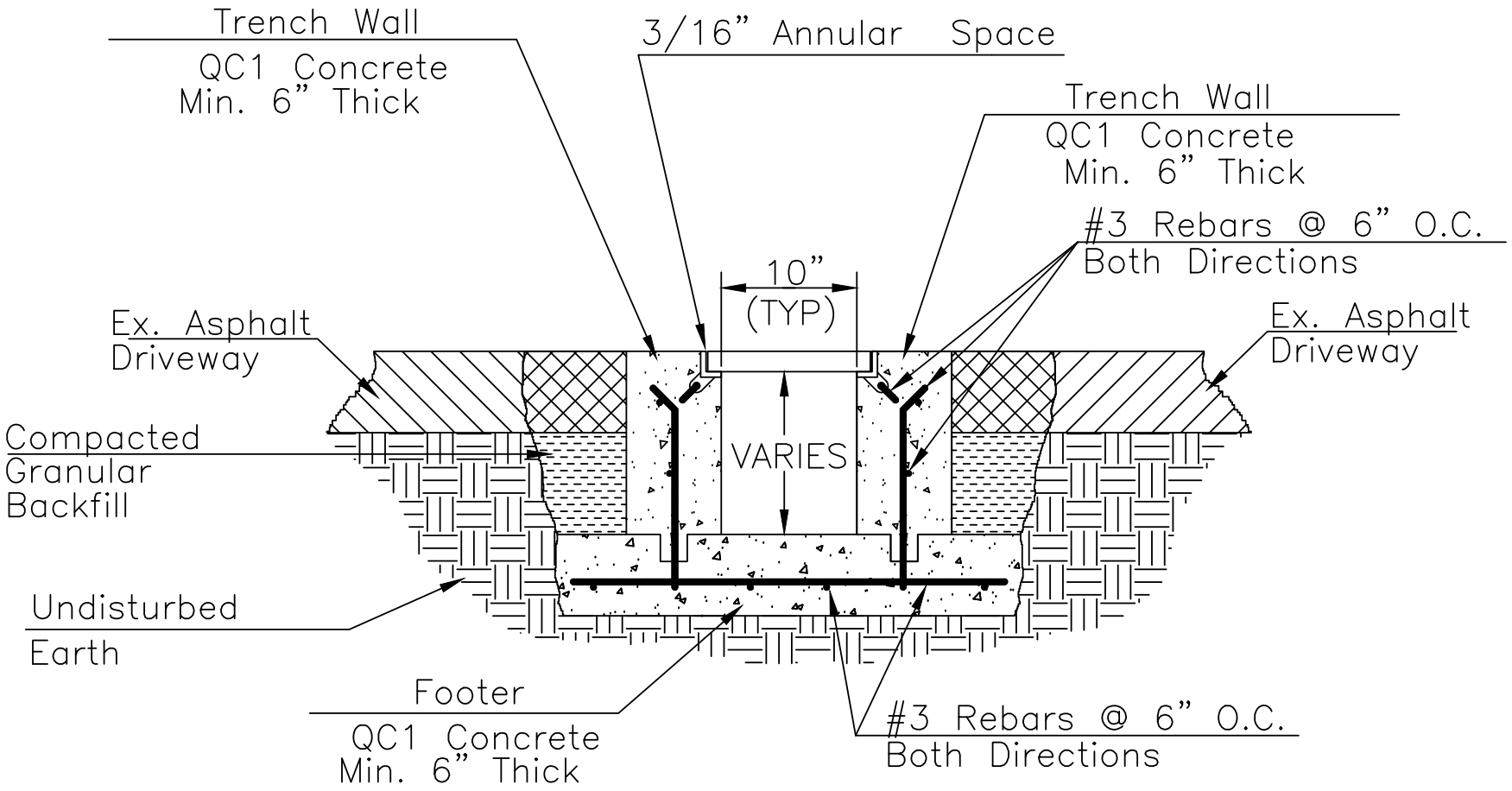
CINCINNATI STORMWATER MANAGEMENT UTILITY

Typical Installation of Building Storm Sewer - 120309

Approved Eric Saylor

City Stormwater Management Engineer

Revision
DATE:
04/13/2021



A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Typical Trench Drain - 120314

Approved Eric Saylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2+/- feet apart horizontally in a 3 or 4 foot manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Typical Trench Drain

1. **Only to be used with permission from SMU**
2. **Grate: Neenah Foundry Company, Type A w/ Double Bolt Joint, Catalogue # R-4999CX or Stormwater approved substitute.**
3. **Set grate elevation $\frac{1}{4}$" below grade**

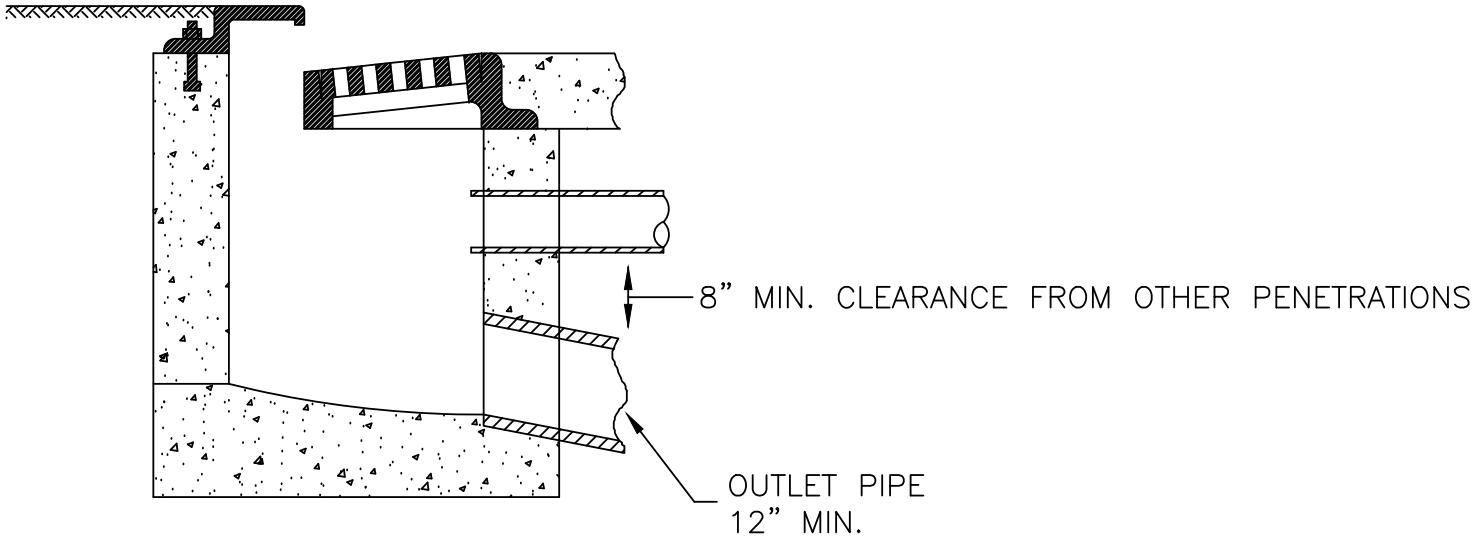
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

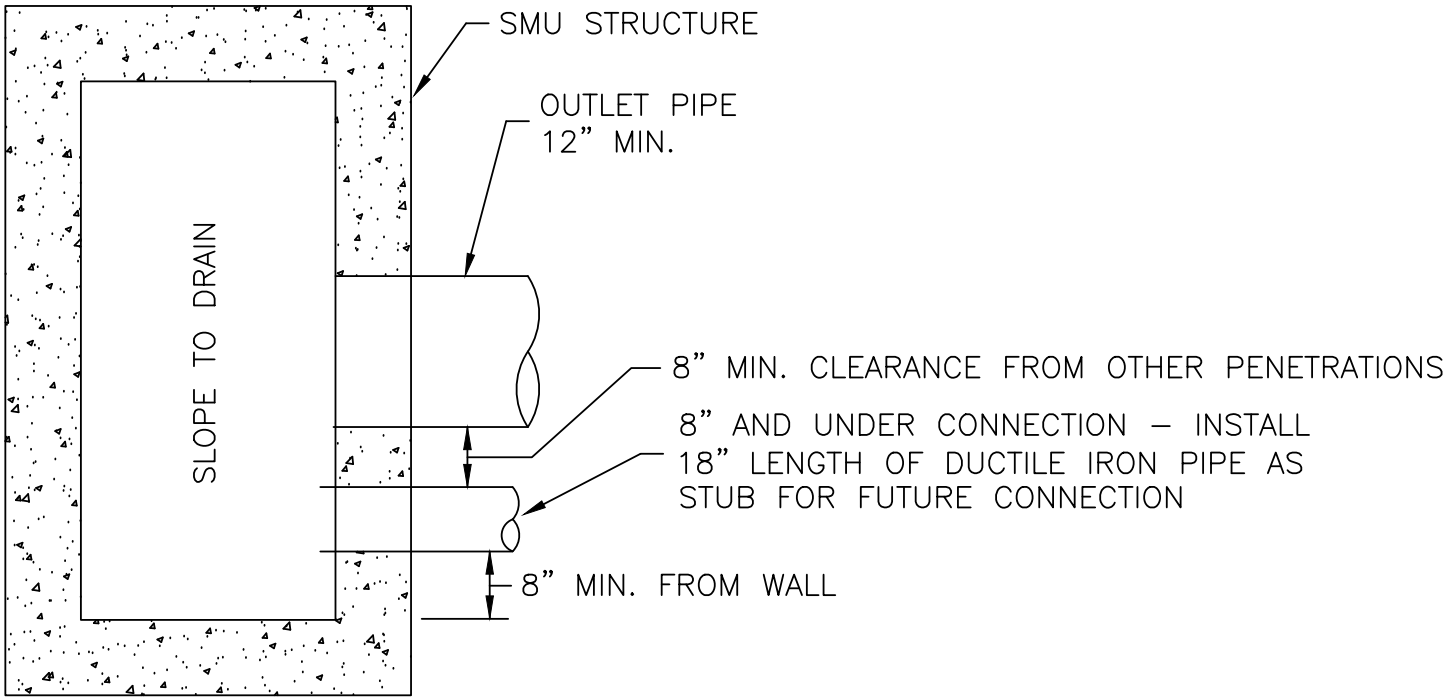
Typical Trench Drain - 120314

Approved Eric Taylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021



TYPICAL PROFILE



TYPICAL PLAN

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard 8" and Under Connection to SMU Structure - 120340

Approved Eric Dayton

City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010I.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard 8" and Under Connection

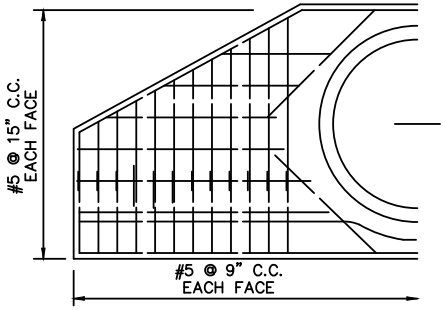
1. **Connections to a ductile iron stub shall be made with a FERNCO or other approved coupling.**
2. **Provide a stopper plug and seal stub end if not connecting at the time of construction.**
3. **An approved gasket material shall be installed between the structure and the conduit.**

A Division of Greater Cincinnati Water Works

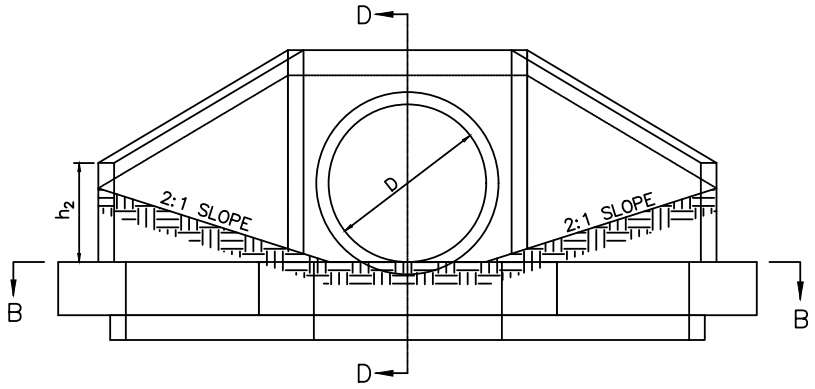
CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard 8" and Under Connection to SMU Structure - 120340

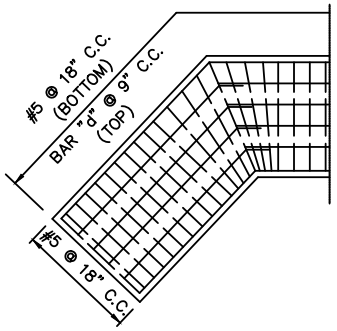
Approved Eric Saylor
City Stormwater Management Engineer



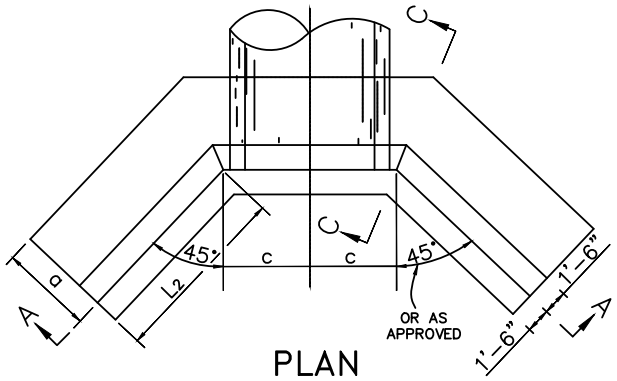
HALF–SECTION A–A



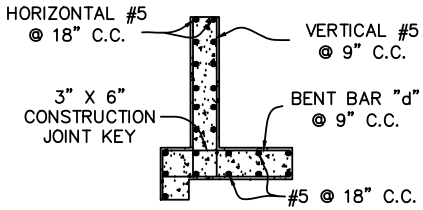
ELEVATION



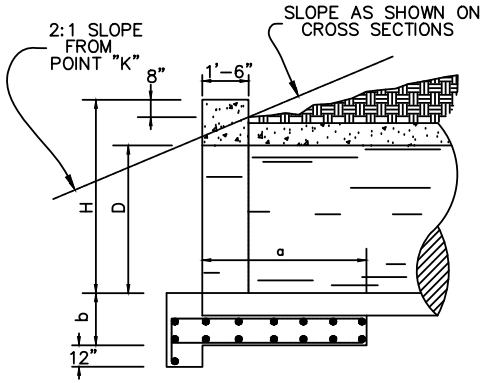
HALF–SECTION B–B



PLAN
TYPE "A"



SECTION C–C



SECTION D–D

Revision
Date:
4/13/2021

A Division of Greater Cincinnati Water Works

CINCINNATI
STORMWATER
MANAGEMENT UTILITY

Standard Wingwall - 120341

Approved Eric Dayton
City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard Wingwall

1. HW–3 HEADWALLS WHERE REQUIRED WILL BE PROVIDED FOR SKEWED AND NONSKEWED CULVERTS HAVING A DIAMETER OR RISE OF 42” TO 84” INCLUSIVE.
2. DIMENSIONS AND QUANTITIES ARE SHOWN FOR CIRCULAR SECTIONS ONLY.
3. WHEN USED WITH REINFORCED ELLIPTICAL CONCRETE PIPE OR CORRUGATED METAL PIPE ARCHES IT WILL BE NECESSARY TO DETERMINE SUCH DIMENSIONS AND QUANTITIES WHICH SHALL GENERALLY CONFORM WITH THOSE LISTED FOR THE NEAREST SIZE CIRCULAR PIPE.
4. THE DIMENSIONS ESTABLISHED BY VERTICAL DIAMETER SHALL APPLY TO RISE AND THE DIMENSIONS ESTABLISHED BY HORIZONTAL DIAMETER SHALL APPLY TO SPAN.
5. CHAMFER ALL EXPOSED CORNERS TO $\frac{1}{4}$”.
6. FOUNDATION: WHERE THE SOIL BORINGS INDICATE A BEARING CAPACITY OF LESS THAN 2500 LBS. PER SQUARE FOOT IT WILL BE NECESSARY TO INCREASE THE WIDTH OF THE FOOTING.

PIPE DIAM. D	M	a	b	c	BAR d	L_2	h_2	C.Y. CONC. CMP.	C.Y. CONC. RCP	STEEL LBS.	PIPE DIAM. D
42”	4’–11”	3’–3”	1’–6”	2’–5”	#5	7–9”	3’–3”	8.7	8.5	718	42”
48”	5’–5”	3’–6”	1’–6”	2’–9”	#5	9’–2”	3’–7”	10.6	10.3	925	48”
54”	5’–11”	3’–9”	1’–6”	3’–0”	#5	10’–7”	3’–10”	12.6	12.2	1188	54”
60”	6’–6”	4’–0”	1’–6”	3’–3”	#5	12’–0”	4’–1”	14.8	14.3	1354	60”
72”	7’–7”	4’–6”	1’–7”	3’–9”	#7	14’–10”	4’–8”	20.2	19.6	2075	72”
84”	8’–8”	5’–0”	1’–10”	4’–3”	#8	17’–8”	5’–2”	27.9	27.0	2990	84”

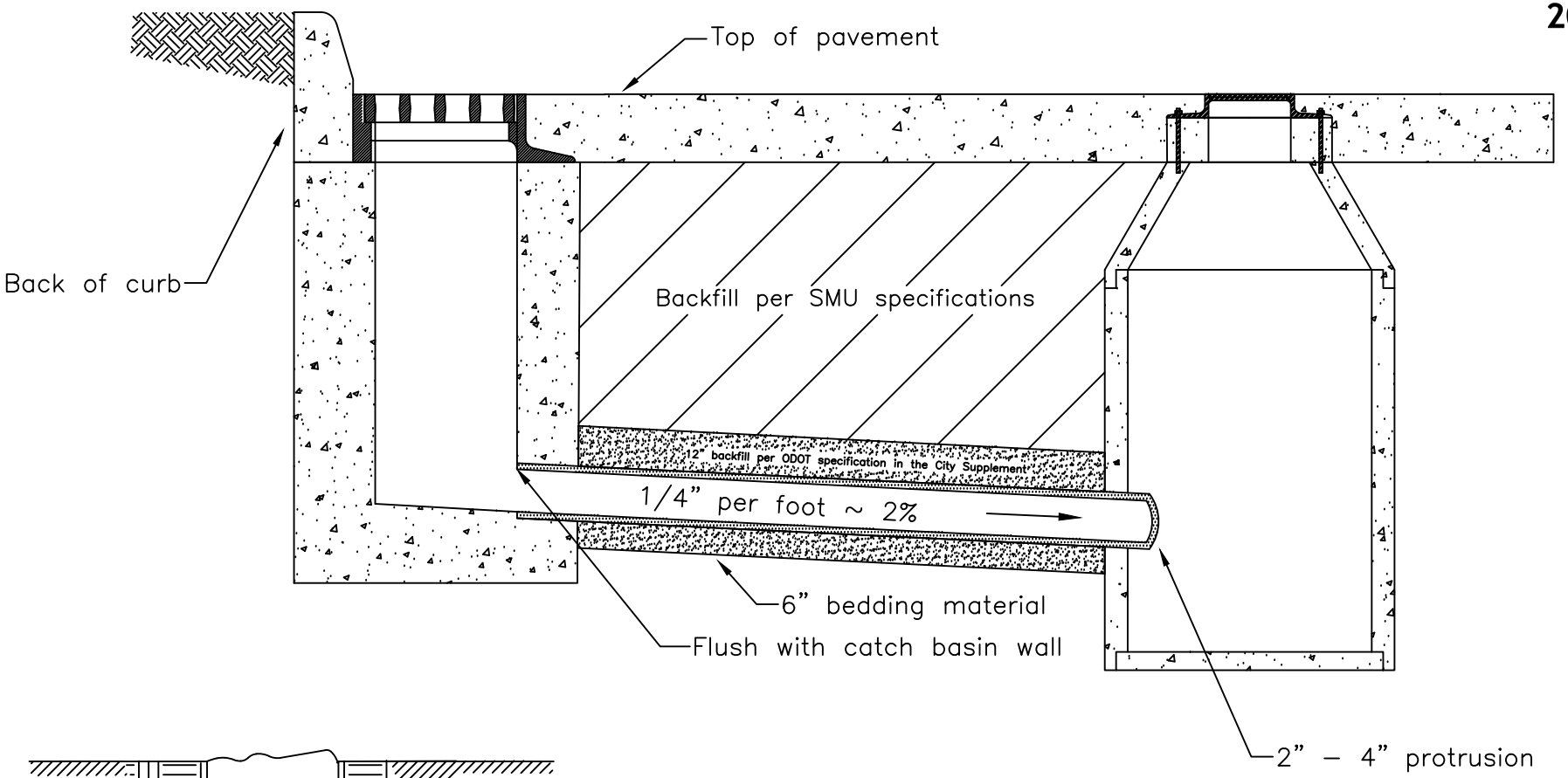
A Division of Greater Cincinnati Water Works

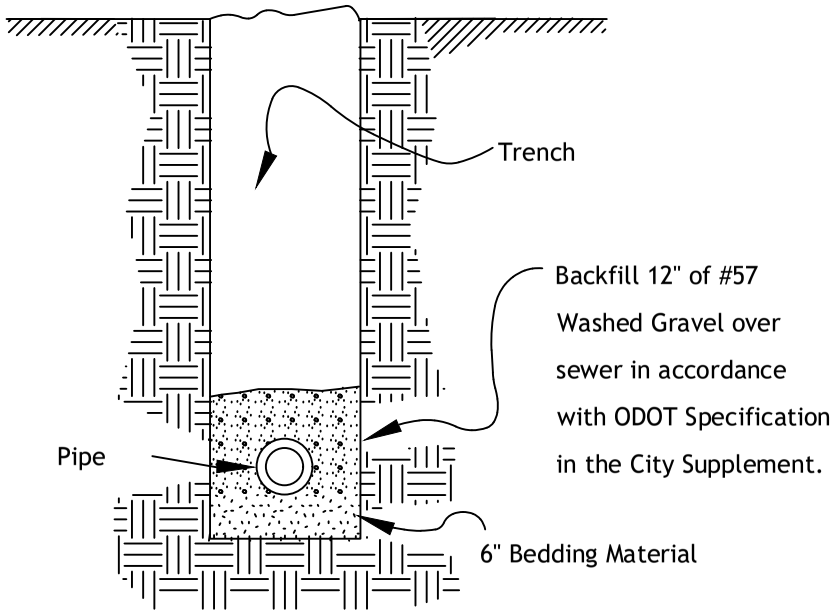
CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Wingwall - 120341

Approved Eric Taylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021





DETAIL – A

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Catch Basin
- Manhole Tap Connection - 120351

Approved Eric Saylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Standard Catch Basin- Manhole Tap Connection

1. All penetrations shall be manufactured or cored and shall not exceed 4" of the conduit’s outside diameter.
2. No bends allowed in pipe.
3. All conduit in traveled ROW shall be backfilled with flowable fill or equivalent after initial fill. (see Detail A)
4. All conduit not in the traveled ROW must be backfilled in 12" compacted lifts.
5. Consult SMU pipe policy for allowed pipe materials.

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Standard Catch Basin
- Manhole Tap Connection - 120351

Approved Eric Taylor
City Stormwater Management Engineer

Revision Date: 4/13/2021

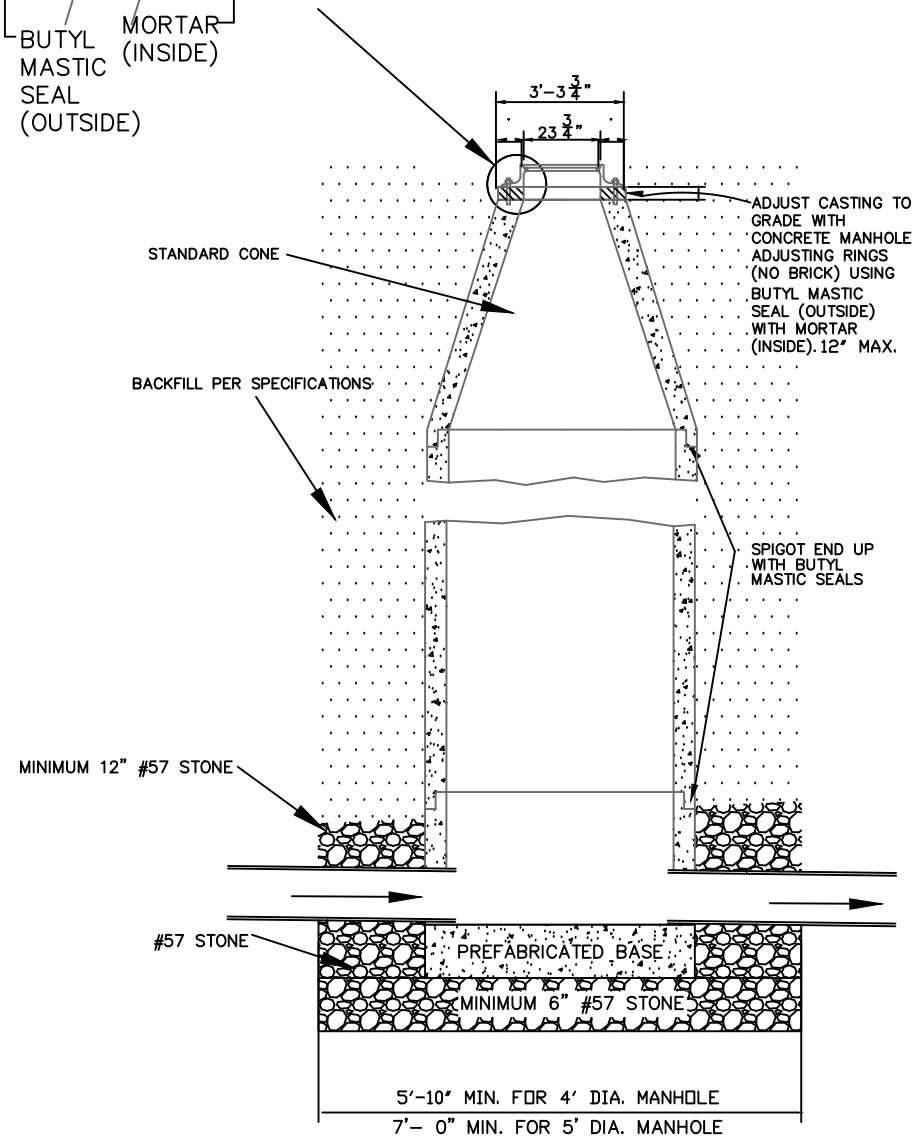
CONCRETE ADJUSTING RINGS

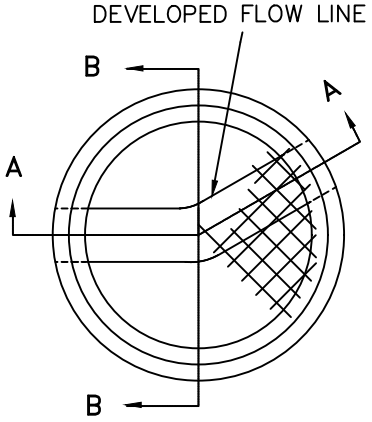
3/4" CINCH ANCHOR

BUTYL MASTIC SEAL (OUTSIDE)

MORTAR (INSIDE)

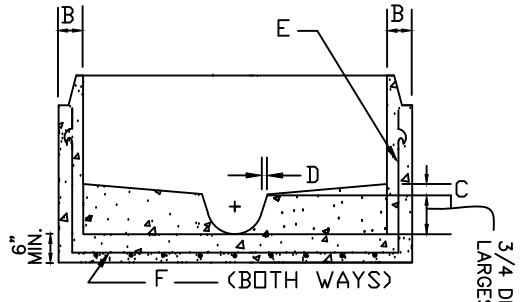
SET FRAME FLUSH WITH PAVEMENT AND IMBED IN MORTAR. SECURE FRAME TO CONE THROUGH ALL ADJUSTING RINGS WITH FOUR 3/4" STAINLESS CINCH ANCHORS.



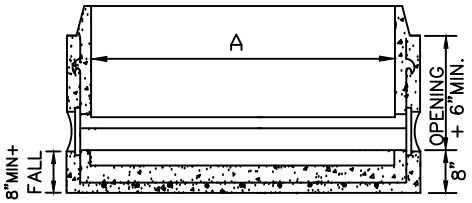


PLAN

MANHOLE BASE



SECTION B–B



SECTION A–A

PIPE DIAMETER	DIMENSION			
	A	B	C	D
8"THRU 18"	48"	5"	2"–3"	UP TO 1 1/2"
21"& 24"	48"	5"*	2"–3"	"
	60"	6"*	2"–3"	"
27" – 36"	60"	6"	2"–3"	UP TO 1 1/2"

* MOVEABLE PANEL CONSTRUCTION MAY BE USED PROVIDING 5"MIN. THICKNESS PROVIDED.

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Manhole on Storm Conduit 42" and Under - 120354

Approved Eric Dayton

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6" compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2".
21. For installation of risers, a 1" tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1" and a maximum of 2".
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit's outside diameter.
29. Shims are not permitted.

Manhole on Storm Conduit 42" and Under

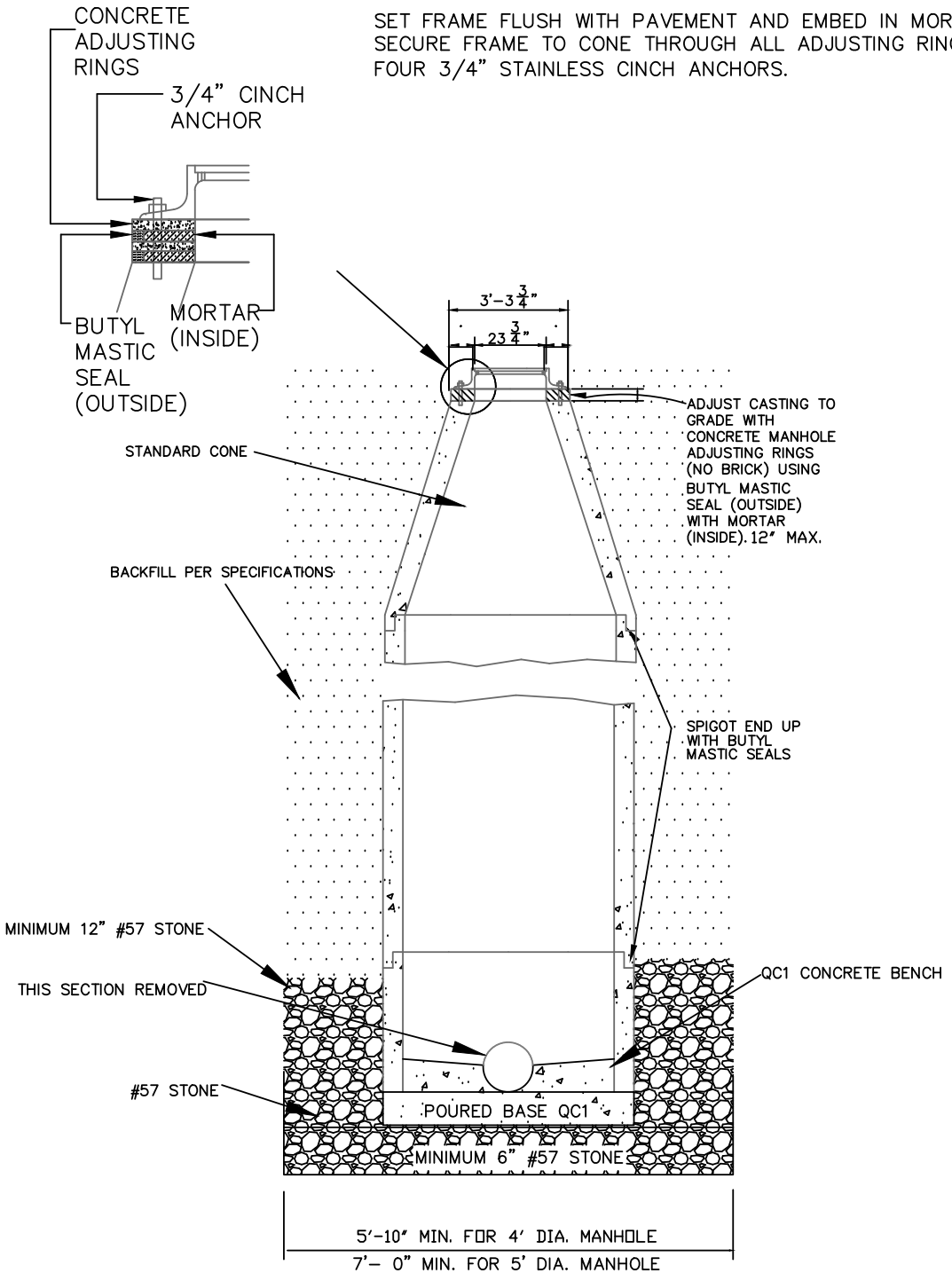
1. 5' DIAMETER MANHOLE SHALL BE CONSTRUCTED OF 60" PRECAST CONCRETE MANHOLE SECTIONS.
2. A 5' TO 4' REDUCER MAY BE USED ABOVE THE BASE SECTION.
3. 3' ECCENTRIC CONE MAY BE USED ONLY WHERE PERMISSION IS GRANTED BY THE ENGINEER.
4. PRECAST CONCRETE BARRELS AND CONES SHALL MEET THE REQUIREMENTS OF ODOT SPECIFICATIONS.
5. JOINTS ON MANHOLE SECTIONS SHALL BE MADE WITH A RUBBER GASKET MEETING THE REQUIREMENT OF ASTM C-443, EXCEPT THAT ONLY "O" RING AND PROFILE GASKETS ARE ACCEPTABLE.
6. LIFT HOLES IN MANHOLES TO BE SEALED WITH HYDRAULIC CEMENT. MANHOLE FRAME AND COVER CASTINGS SHALL BE IN ACCORDANCE WITH STD. ACC. NO. 120282.
7. NO STEPS PERMITTED IN MANHOLE SECTIONS.
8. STEPS MUST BE REMOVED AND THE HOLES PROPERLY GROUTED.
9. A FLOW LINE MUST BE ESTABLISHED IN THE FLOOR OF THE MANHOLE.
10. PRECAST MANHOLE BASE MAY BE USED ON 8" TO 36"CONDUIT UNLESS OTHERWISE NOTED ON THE PLANS.
11. PRECAST MANHOLE BASE SHALL NOT BE USED IF THE GRADE OF THE INFLUENT OR EFFLUENT CONDUIT EXCEEDS 10%, UNLESS THE SEAL BETWEEN THE PRECAST MANHOLE BASE AND INFLUENT AND/OR EFFLUENT LINES IS CAST IN A SKEW TO ACCEPT LARGER GRADES.
12. ALL MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 706.13 OF THE STATE OF OHIO SPECIFICATIONS EXCEPT AS OTHER-WISE NOTED HEREIN.
13. THE SEAL BETWEEN PRECAST MANHOLE BASE AND INFLUENT AND/OR EFFLUENT CONDUIT SHALL BE A RUBBER GASKET, "A-LOK", "KOR-N-SEAL","DURA-SEAL" OR AN APPROVED EQUAL.
14. OPENINGS FOR INFLUENT AND EFFLUENT CONDUIT SHALL BE PROVIDED TO MEET THE PROJECT REQUIREMENTS.
15. THE PRECAST BASE SHALL HAVE THE FLOOR AND SIDE WALL CAST AS ONE UNIT; IF THE FLOW LINE (CHANNEL) AND BENCHES ARE NOT CAST AS A PART OF FLOOR AND SIDE WALL, THEY SHALL BE CAST OF CONCRETE AT THE PLACE OF MANUFACTURE.
16. PRECAST MANHOLE BASES SHALL BE INSTALLED ON A 6" MINIMUM GRAVEL BASE (#57 CLEAN WASHED).
17. NO SLAB TOP MANHOLE LIDS ALLOWED IN THE RIGHT-OF-WAY

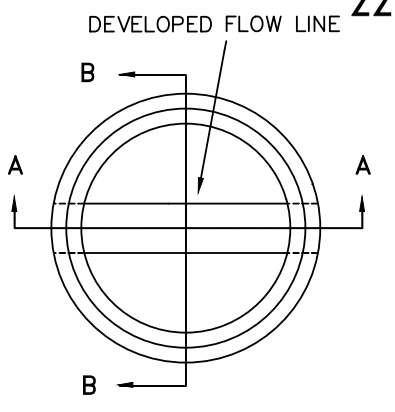
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

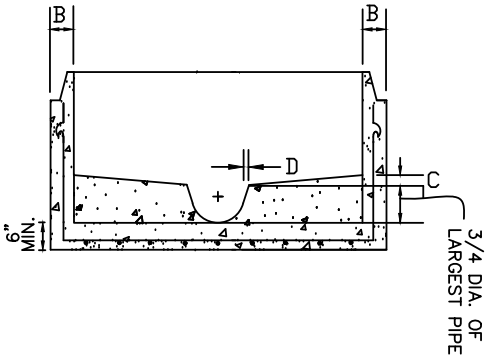
Manhole on Storm Conduit 42" and Under - 120354

Approved Eric Taylor
City Stormwater Management Engineer

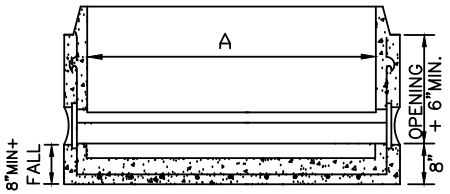




PLAN
MANHOLE BASE



SECTION B–B



SECTION A–A

PIPE DIAMETER	DIMENSION			
	A	B	C	D
8"THRU 24"	48"	5"	2"–3"	UP TO 1 1/2"
27" – 36"	60"	6"	2"–3"	UP TO 1 1/2"

Revision Date: 4/13/2021

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Dog House Manhole - 120355

Approved Eric Taylor

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Dog House Manhole

1. 5' DIAMETER MANHOLE SHALL BE CONSTRUCTED OF 60" PRECAST CONCRETE MANHOLE SECTIONS.
2. A 5' TO 4' REDUCER MAY BE USED ABOVE THE BASE SECTION.
3. 3' ECCENTRIC CONE MAY BE USED ONLY WHERE PERMISSION IS GRANTED BY SMU.
4. PRECAST CONCRETE BARRELS AND CONES SHALL MEET THE REQUIREMENTS OF ODOT SPECIFICATIONS.
5. JOINTS ON MANHOLE SECTIONS SHALL BE MADE WITH A RUBBER GASKET MEETING THE REQUIREMENT OF ASTM C-443, EXCEPT THAT ONLY "O" RING AND PROFILE GASKETS ARE ACCEPTABLE.
6. LIFT HOLES IN MANHOLES TO BE SEALED WITH HYDRAULIC CEMENT.
7. MANHOLE FRAME AND COVER CASTINGS SHALL BE IN ACCORDANCE WITH STD. ACC. NO. 120282.
8. STEPS MUST BE REMOVED AND THE HOLES PROPERLY GROUTED.
9. A FLOW LINE MUST BE ESTABLISHED IN THE FLOOR OF THE MANHOLE.
10. OPENINGS FOR INFLUENT AND EFFLUENT CONDUIT SHALL BE PROVIDED TO MEET THE PROJECT REQUIREMENTS.
11. MANHOLE BASES SHALL BE INSTALLED ON A 6" MINIMUM GRAVEL BASE (#57 STONE).
12. NO SLAB TOP MANHOLE LIDS ALLOWED IN THE RIGHT OF WAY.

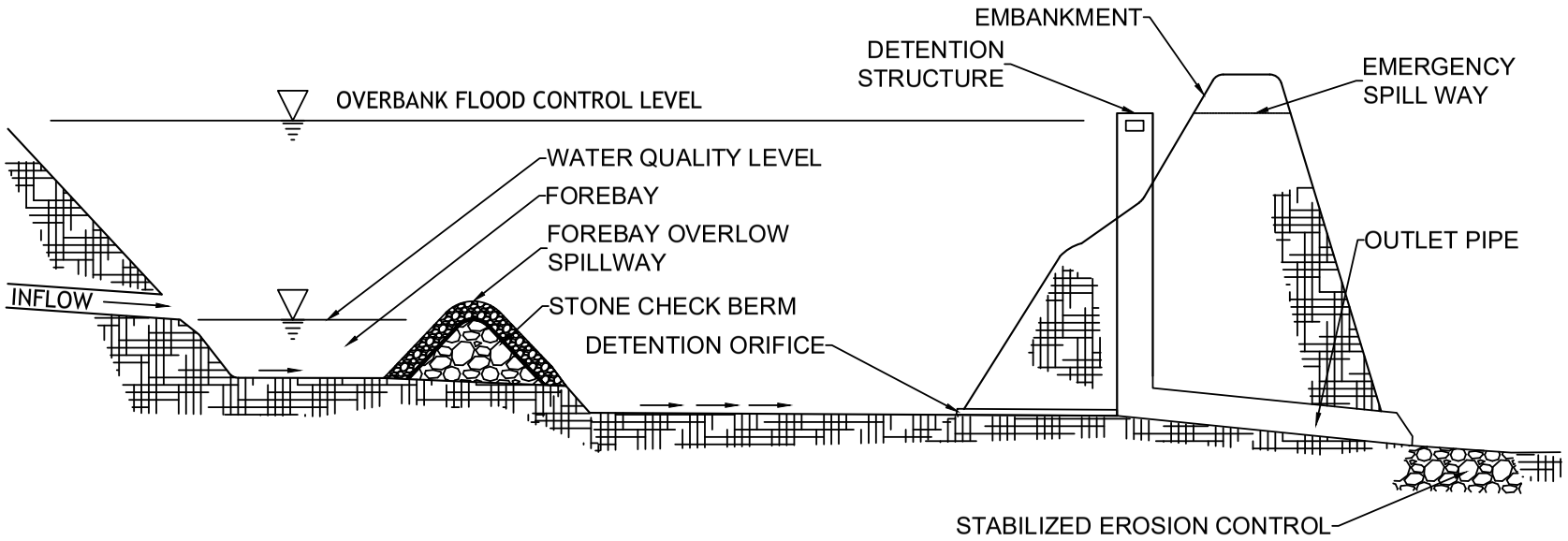
A Division of Greater Cincinnati Water Works

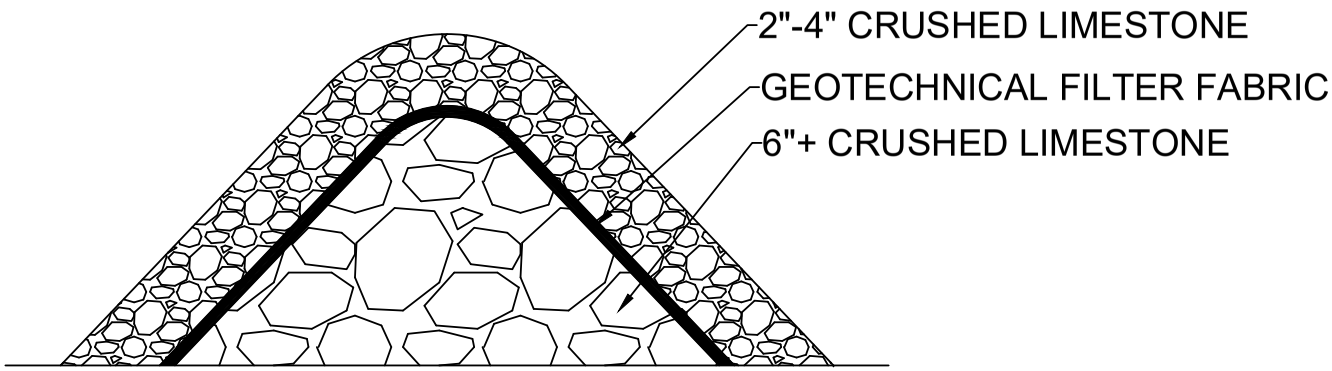
CINCINNATI STORMWATER MANAGEMENT UTILITY

Dog House Manhole - 120355

Approved Eric Saylor
City Stormwater Management Engineer

Revision
Date:
4/13/2021





DETENTION BASIN FOREBAY
CHECK BERM DETAIL

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Detention Basin - 120356

Approved Eric Taylor

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
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14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
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24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Detention Basin

1. Forebay volume shall be equal to 20% of the calculated detention basin volume.
2. Stone check berm shall be constructed of 6" or larger crushed aggregate as a core and wrapped with a geotechnical filter fabric. The exterior layer shall be constructed of 2"-4" crushed aggregate.
3. For detention volume calculations, the stone check berm shall be treated as having no storage benefit.
4. Maintenance of the Forebay shall be part of the O&M plan that is submitted by the owner prior to final approval of the site.
5. Outfall Orifice, Detention Structure, Embankment slopes to be designed per Stormwater Management Utilities Rules and Regulations.
6. Stabilized Erosion Control to be constructed of at least 6" stone.

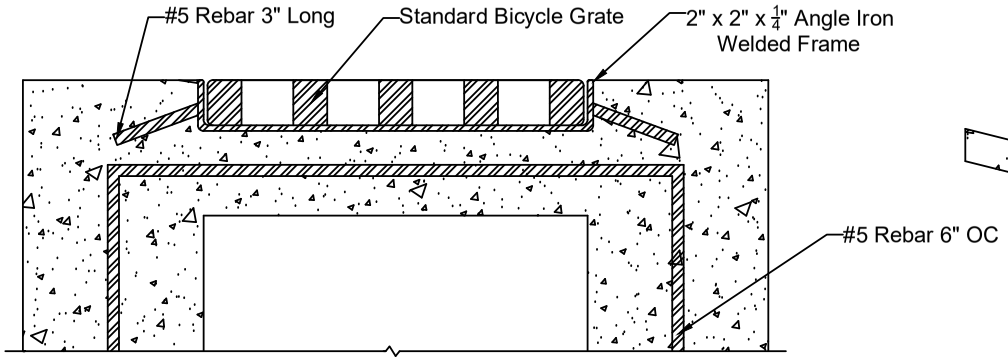
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

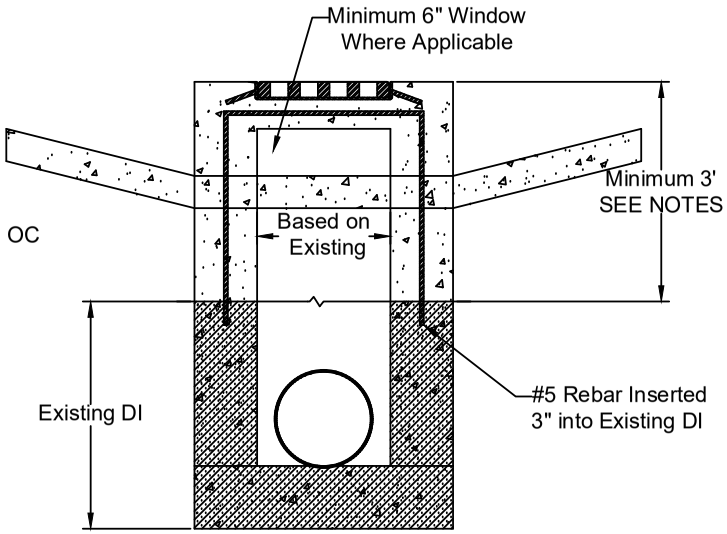
Detention Basin - 120356

Approved Eric Taylor
City Stormwater Management Engineer

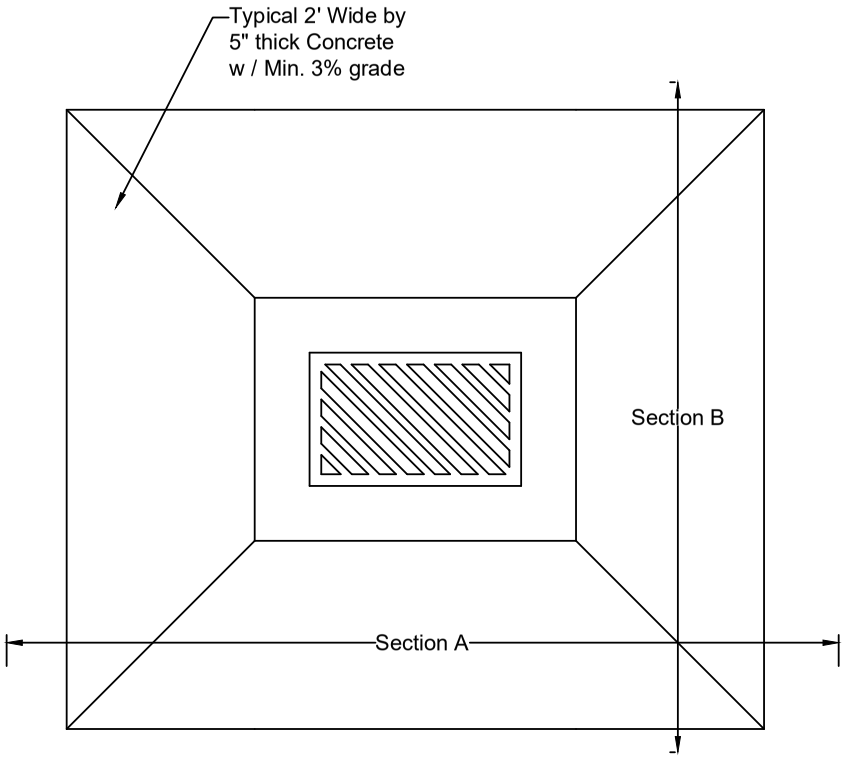
Revision
DATE:
04/13/2021



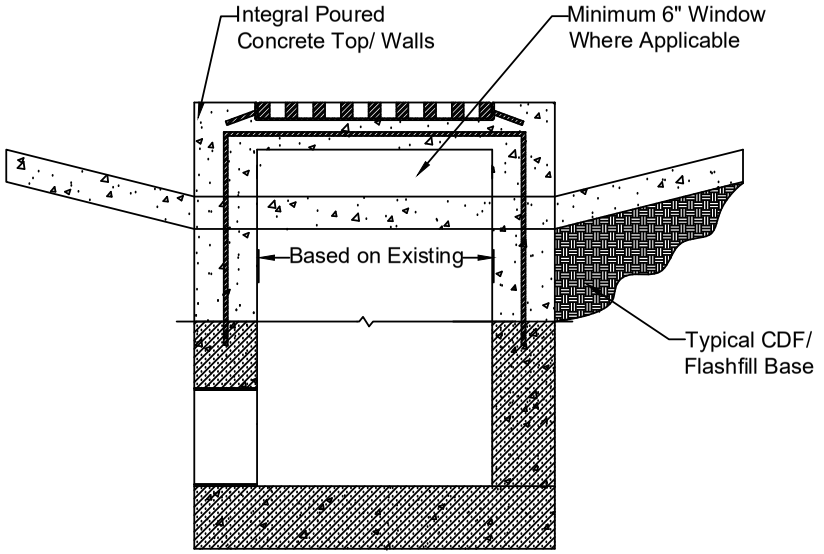
Typical Steel Layout



Section B



Top View



Section A

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Ditch Inlet (DI) Special - 120357

Approved Eric Taylor
City Stormwater Management Engineer

Revision
DATE:
04/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- feet apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

DI Special

1. ***Existing DI walls and floor shall be assessed by SMU to determine how deep this repair will go.***
2. ***Existing DI shall be partially removed to allow for 3' of new concrete top to be poured on existing.***
3. ***Height of new facility shall be 6" above street elevation.***
4. ***2"x2"x 1/4" angle iron shall be pre-fab welded allowing 1/8" gap all the way around the standard bicycle grate.***
5. ***Wall and top sections shall be poured separate from 2' wide minimum approaches around facility.***
6. ***Flowable fill shall be used around walls under 2' approaches.***

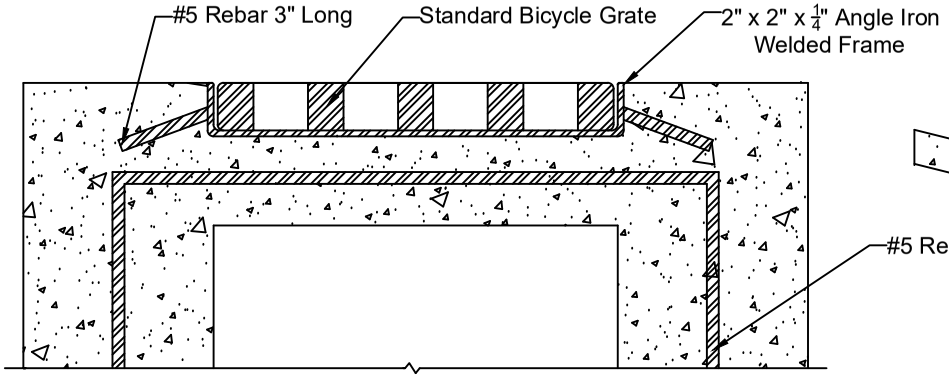
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

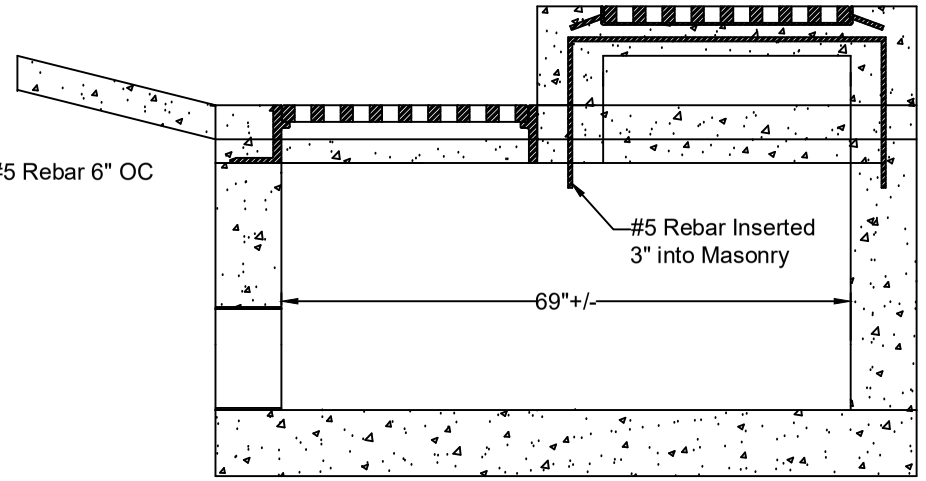
Ditch Inlet (DI) Special - 120357

Approved Eric Taylor
City Stormwater Management Engineer

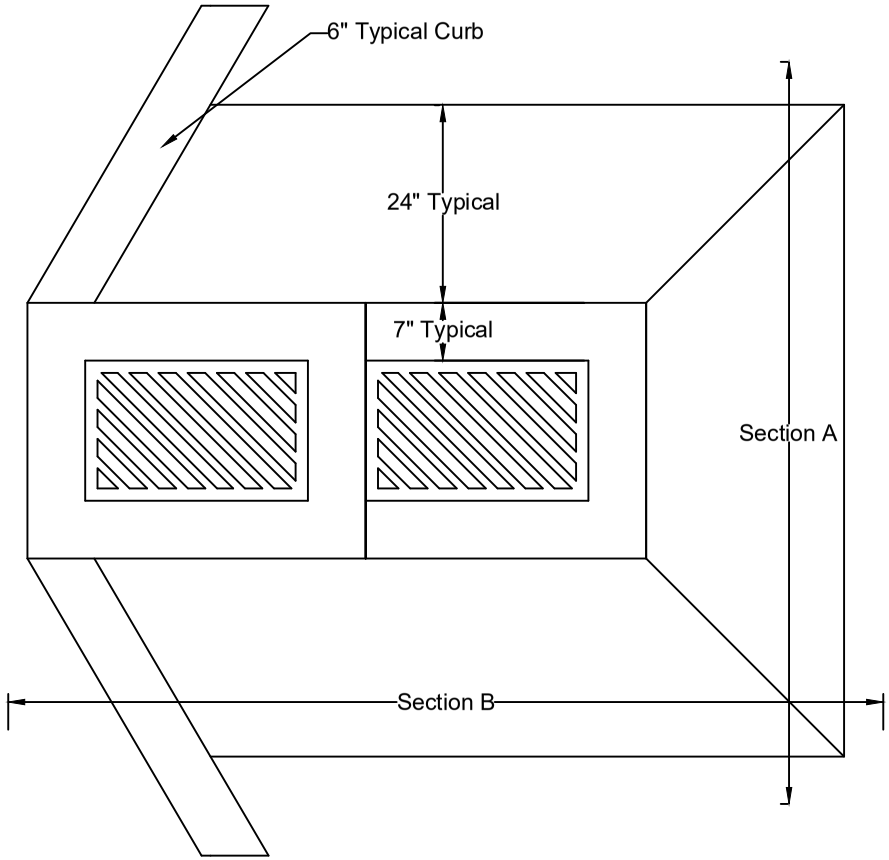
Revision Date:
4/13/2021

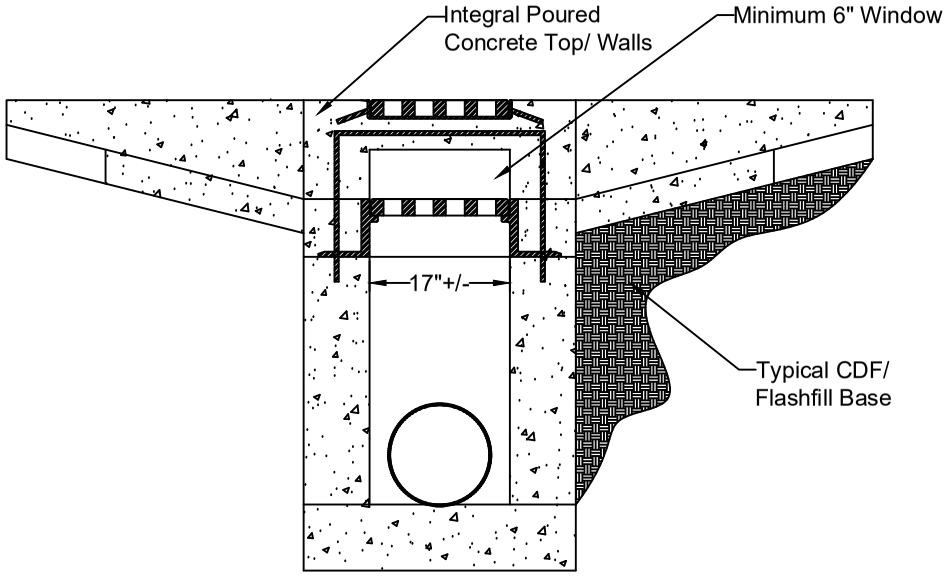


Typical Steel Layout



Section B





Section A

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Double Ditch Inlet Manhole Special (DDIMH) - 120358

Approved Eric Saylor

City Stormwater Management Engineer

Revision
Date:
4/13/2021

General SMU Notes

1. Inlet chambers shall be precast or made from concrete block in accordance with latest ODOT CMS and City Supplement specifications.
2. All structures must meet standard inside dimensions.
3. Block chambers shall be made from solid slab blocks.
4. Mortar joints shall be a minimum of 3/8".
5. Block walls shall be skim coated with a minimum 1/8" mortar.
6. Casting shall be set in a bed of mortar.
7. Block floors are not permitted.
8. Precast box shall be set on a bed of 6” compacted #57 stones with the floor poured to match flow lines.
9. Concrete floors shall be a minimum of 6" thick.
10. Precast walls shall be a minimum 6" thick.
11. All risers shall be sealed with 2 rows of Con-seal. One interior and one exterior.
12. Pipes shall not enter within 8" of an inside corner.
13. Outlet pipe shall be flush with wall or protrude no more than 1".
14. For incoming conduits with diameter of 8" and smaller see Acc. # 120340.
15. For standard casting, see Acc. # 49017.
16. For standard reinforcing steel notes see Acc. # 49010.
17. Inlet connections in a cone section are not permitted.
18. No more than 2 inlet connections spaced 2'+/- apart horizontally in a 3' or 4' manhole section.
19. Hubs inside of any structure are not permitted.
20. All reinforcing bars shall clear interior face of wall by 2”.
21. For installation of risers, a 1” tolerance in either direction is permitted.
22. Protrusions for inlet pipes shall be a minimum of 1” and a maximum of 2”.
23. All pipes shall be set in a bed of mortar, dry fitting is not permitted.
24. Pipe edges shall be smooth. No jagged edges are permitted.
25. Shop drawings for precast structures must be approved prior to work commencing.
26. No knockouts are permitted.
27. No steps are permitted.
28. All penetrations shall be manufactured or cored and shall not exceed 4" greater than the conduit’s outside diameter.
29. Shims are not permitted.

Double Ditch Inlet Manhole Special

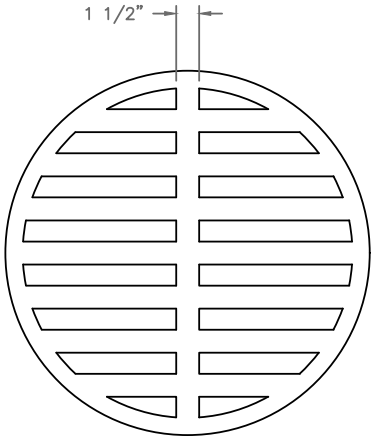
1. ***Left or right side of 2 piece DGI casting to be used in the lower flow line on top of block masonry wall.***
2. ***Flowable fill shall be used around walls under 2' approaches.***
3. ***Top of new facility shall be 6" above street elevation.***
4. ***2" x 2" angle iron shall be pre-fab welded frames to accept a standard bicycle grate with $\frac{1}{8}$" gaps all the way around the grate.***
5. ***Wall and top sections shall be poured seperate from the 2' wide minimum approaches around the facility.***

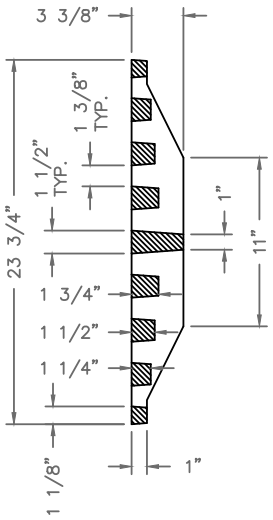
A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

Double Ditch Inlet Manhole Special (DDIMH) - 120358

Approved_____
City Stormwater Management Engineer





NOTE: FREE OPEN AREA = 160 SQUARE INCHES
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 109#

DR. E. REMME	SCALE 1/8"=1"	TITLE: R-2422-C TYPE "G" GRATE	
CH.			
APP.	DIM CHK. P.K.	NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956	NF- 24220001 B
DATE 03/13/89			

CAD DWG. REF: 24220001.DWG- 1

Grated Manhole Lid - 49007

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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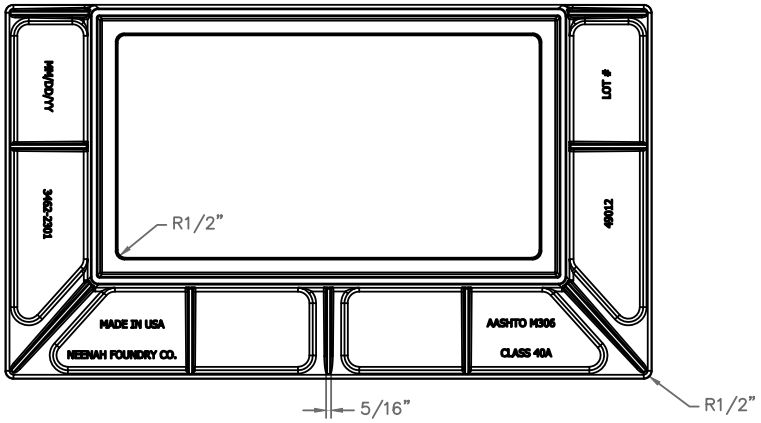

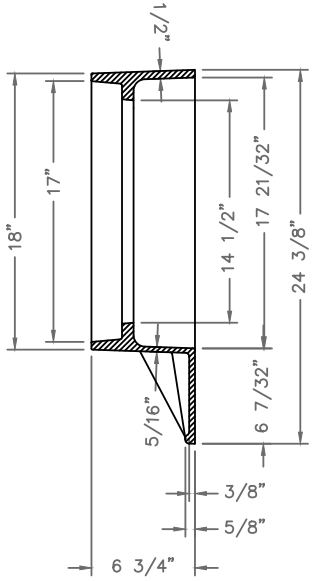

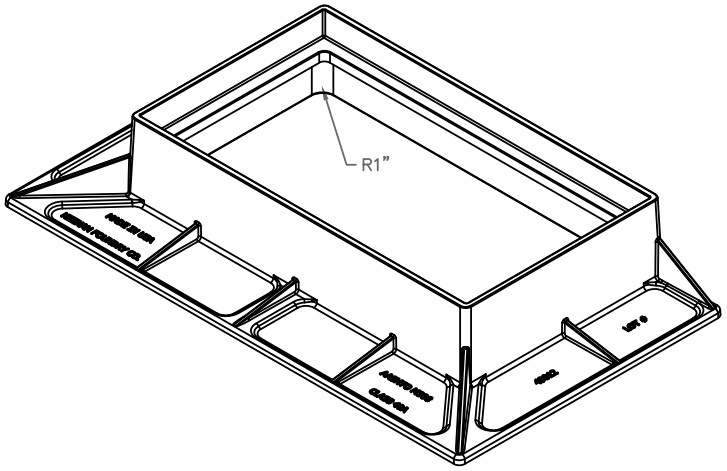

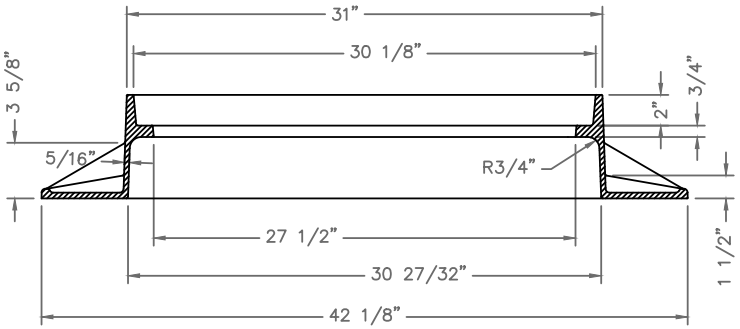

NOTES: MEETS LOADING REQUIREMENTS OF HS-25.
MADE IN THE USA.
QUALIFIES FOR "LEED" CREDITS.
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 40A
FINISH: NO PAINT
WEIGHT: APPROX. 159 LBS. WAS NF-3462T05

2	05-20-2014	CHANGED 30" OPENING TO 30.125"	CAG	XXX	XXX
1	05-13-2014	UPDATED DWG.	CAG	XXX	XXX
#	DATE	REVISION	DR	CH	APP

CAD DWG. REF: 34622301.DWG- 3

DR. RKB/ELN	SCALE 1/8"=1"
CH.	TITLE: R-3462-AW, FRAME CITY OF CINCINNATI - ACC. NO. 49012
APP.	NEENAH FOUNDRY
DATE 05-13-2014	NEENAH WISCONSIN 54956 PHONE 800-558-5075
www.neenahfoundry.com	LINCOLN, NEBRASKA 68529 PHONE 800-234-7466
	NF-34622301 B

Single Gutter Inlet Casting- 49012

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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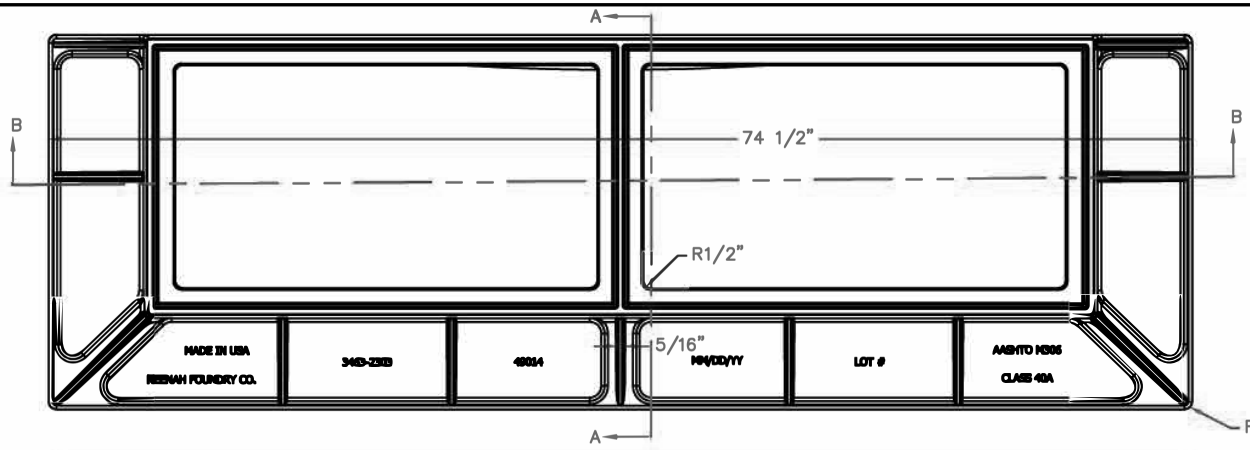
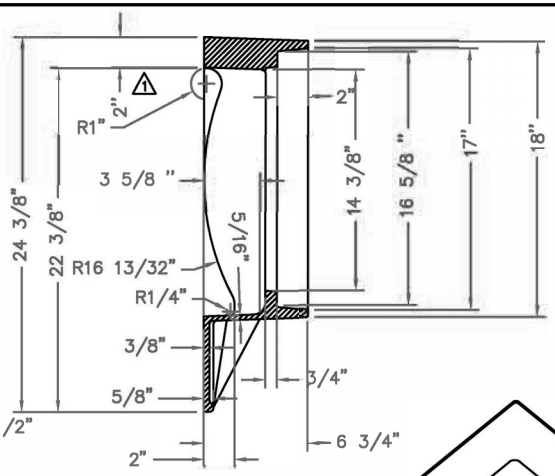
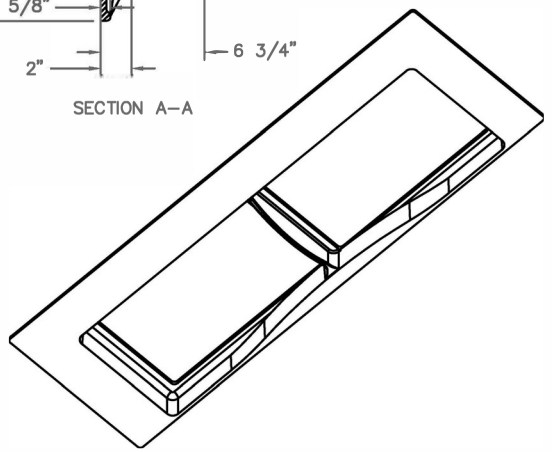
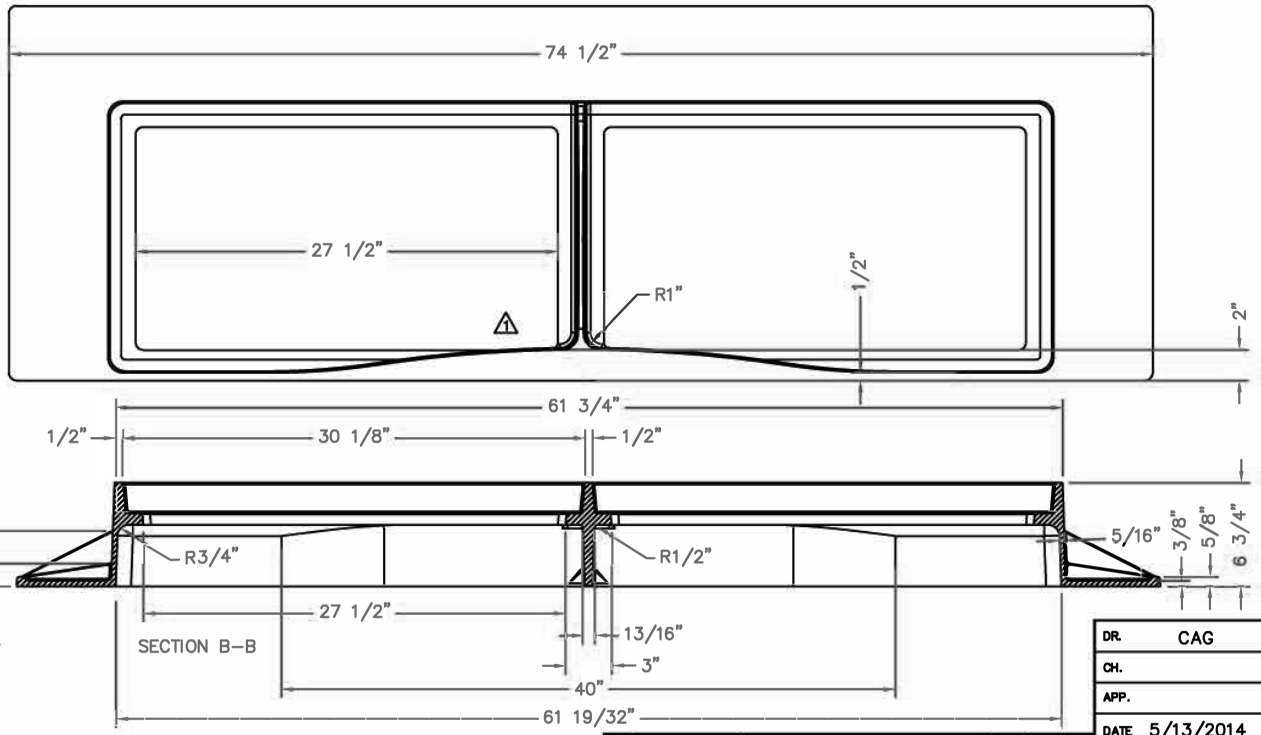




SECTION A–A





SECTION B–B

NOTES: MEETS LOADING REQUIREMENTS OF HS–25.
MADE IN THE USA.
QUALIFIES FOR "LEED" CREDITS.
COMPONENT NO.: 3463–XXXX
EQUIPMENT NOS.: NEW PATTERN
MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 40A
FINISH: NO PAINT
WEIGHT: 277#

DR. CAG	SCALE 1/8"=1"	TITLE: R–3463–BW, FRAME CITY OF CINCINNATI – ACC. NO. 49014			
CH.					
APP.					
DATE 5/13/2014	NEENAH FOUNDRY		NF-34632303	B	
www.neenahfoundry.com	NEENAH WISCONSIN 54956 PHONE 800–558–5075	LINCOLN, NEBRASKA 68529 PHONE 800–234–7466			

CAD DWG. REF: 34632303.DWG– 2

1	12–05–2014	ADDED MAT. TO BACK WALL WAS 1/2	HSH	RKB	SPT

Double Gutter Inlet Casting - 49014

Or Stormwater Approved Substitution

Approved Era Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI

STORMWATER

MANAGEMENT UTILITY

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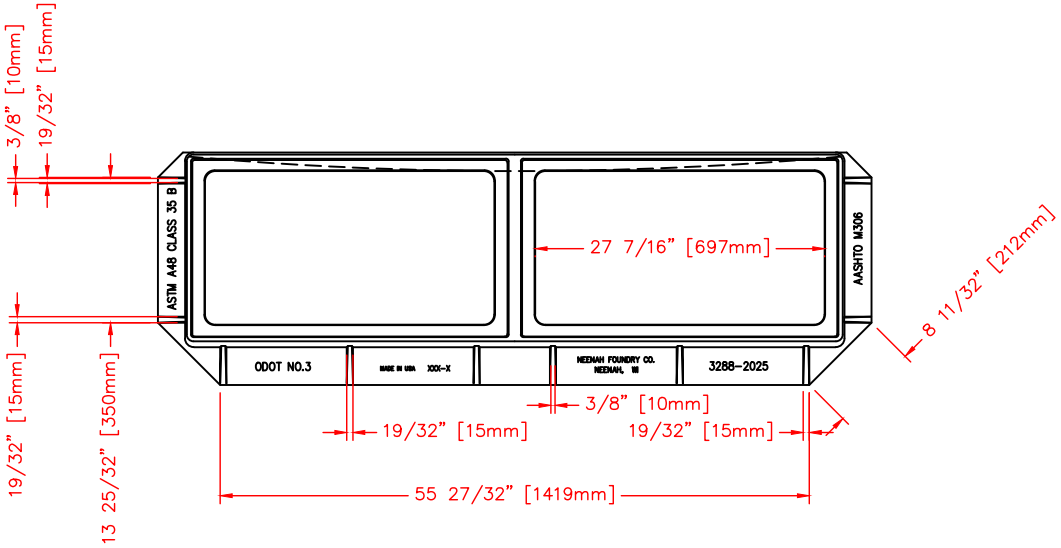

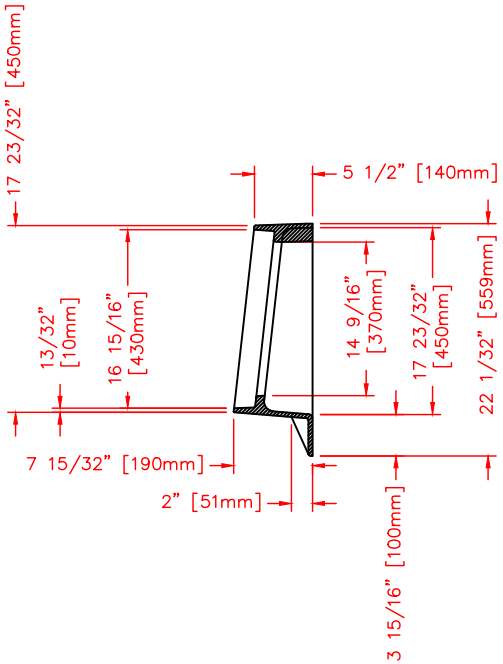

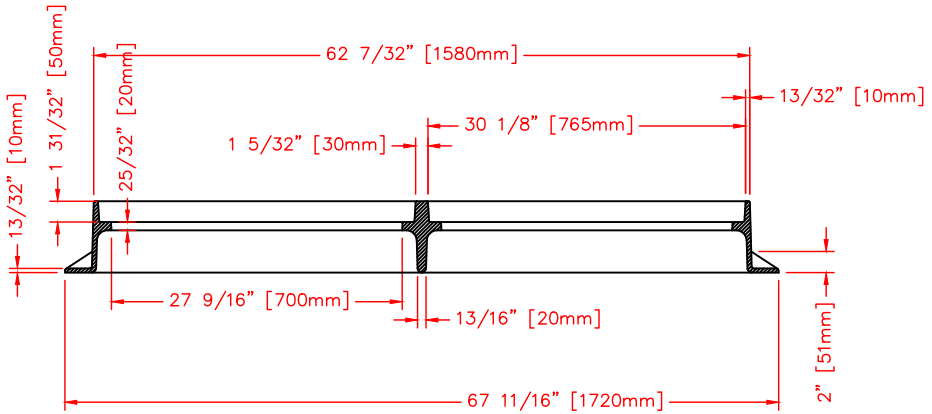

NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH AND [METRIC]
CAPABLE OF H-25/HS-25 LOAD RATING(SUPPORTED ON THREE SIDES).
COMPONENT NOS.: FRAME 3288-2005,
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: EST 290#

4	03-30-2017	ADDED LOAD RATING	HSH
3	10-20-2014	REMOVED BACK FLANGE	RKB
2	06-25-2010	REMOVED PART OF FLANGE	RKB
1	12-01-2009	ADD MTL TO UNSUPPORTED SIDE	SMA
#	DATE	REVISION	

DR.	SCALE 1"=1'-0"	TITLE:	
CH.			
APP.	DIM CHK.	NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956 NF	B
DATE			

CAD DWG. REF: 5

Combination Inlet Casting - 49017

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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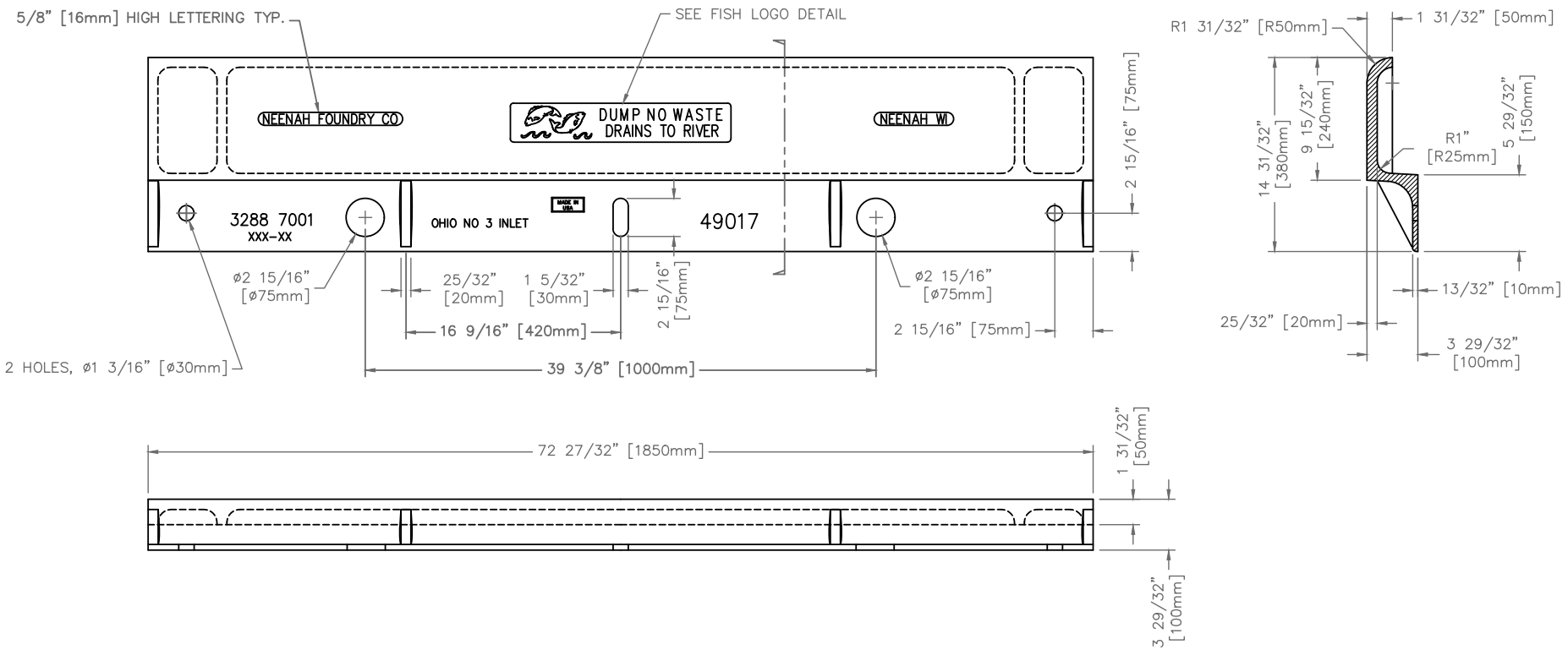

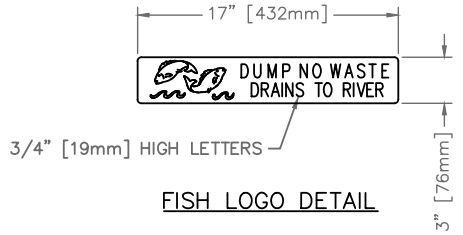

FISH LOGO DETAIL

NOTE: COMPLIES WITH AASHTO M306 LOADING REQUIREMENTS.
ALL DIMENSIONS SHOWN ARE IN ENGLISH AND [METRIC]
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 252# WAS NF-3288T09

DR. E. REMME	SCALE 1/8"=1"	TITLE: R-3288 CURB PLATE w/ (2) FISH LOGO	
CH.			
APP.	DIM CHK.	NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956	NF-32887001 B
DATE 12-18-2001			

04-28-2006	UPDATED DRAWING PER PATTERN CHECK	ELR
05-25-2004	ADDED ENGLISH DIMENSIONS	CSK
DATE	REVISION	INT

CAD DWG. REF: 32887001.DWG- 3

Curb Plate - 49017CP

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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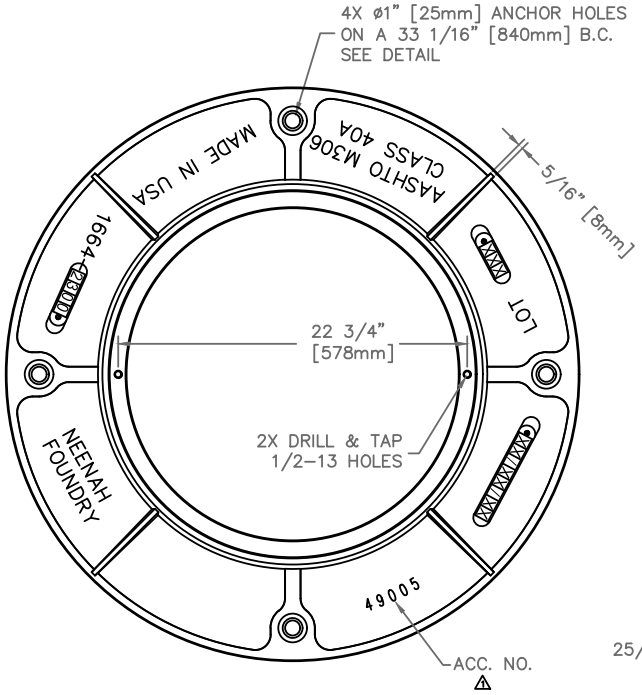

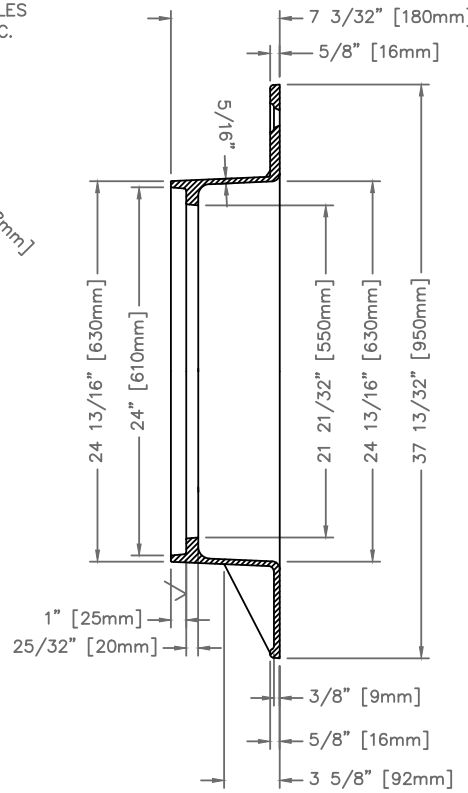

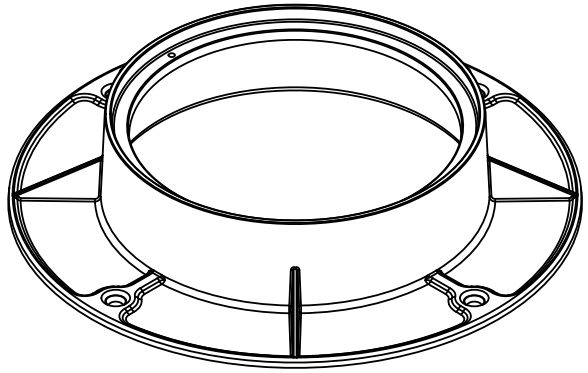

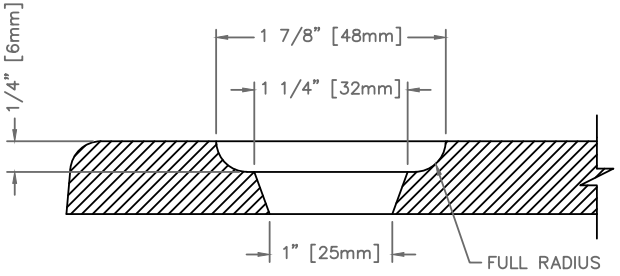

ANCHOR HOLE DETAIL

FULL SCALE

NOTES: MEETS LOADING REQUIREMENTS OF HS-25.
MADE IN THE USA.
QUALIFIES FOR "LEED" CREDITS.
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 40A
FINISH: NO PAINT
WEIGHT: 134#

DR. RKB	SCALE 1/8"=1"	TITLE: R-1664-AW FRAME			
CH.					
APP.	NEENAH FOUNDRY				
DATE 10-25-2013	NEENAH WISCONSIN 54956 PHONE 800-558-5075				
www.neenahfoundry.com	LINCOLN, NEBRASKA 68529 PHONE 800-234-7466				
	NF-16642300	B			

01-20-2015	ADDED ACC. NO.	RKB	ELN	SPT	
DATE	REVISION	DR	CH	APP	

CAD DWG. REF: 16642300.DWG- 2

Manhole Casting - 120282

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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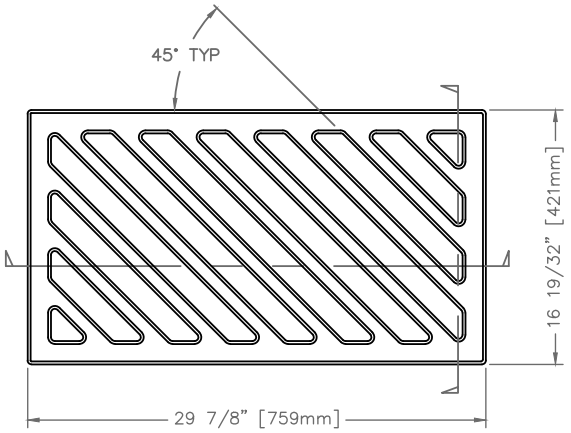
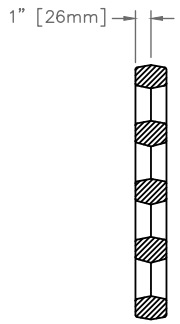
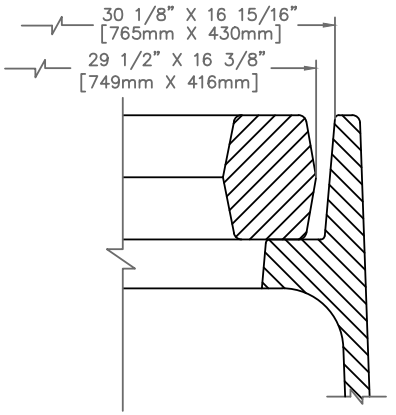
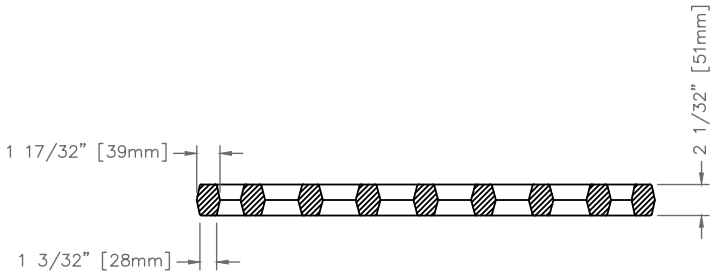
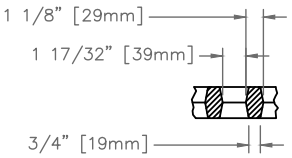






FRAME AND GRATE FIT DETAIL
HALF SCALE





RIB SECTION

NOTE: COMPLIES WITH AASHTO M306 LOADING REQUIREMENTS.
ALL DIMENSIONS ARE SHOWN IN ENGLISH AND [METRIC].
FREE OPEN AREA: 1.41 SQUARE FEET
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NOT PAINTED
WEIGHT: 130#

DATE	REVISION	
05-18-2004	ADDED ENGLISH DIMENSIONS	CSK
11-07-1995	ADDED GRATE AND FRAME FIT DETAIL	ELR
10-20-1992	GRATE PARTED IN CENTER AS OF 8-13-90	ELR

DR. DB	SCALE 1/8"=1"	TITLE: R-3288-E DR / DL GRATE	
CH.			
APP.	DIM CHK.	NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956	NF-32880030 B
DATE 6/03/88			

CAD DWG. REF: 32880030.DWG- 4

Standard Bicycle Grate - 120360

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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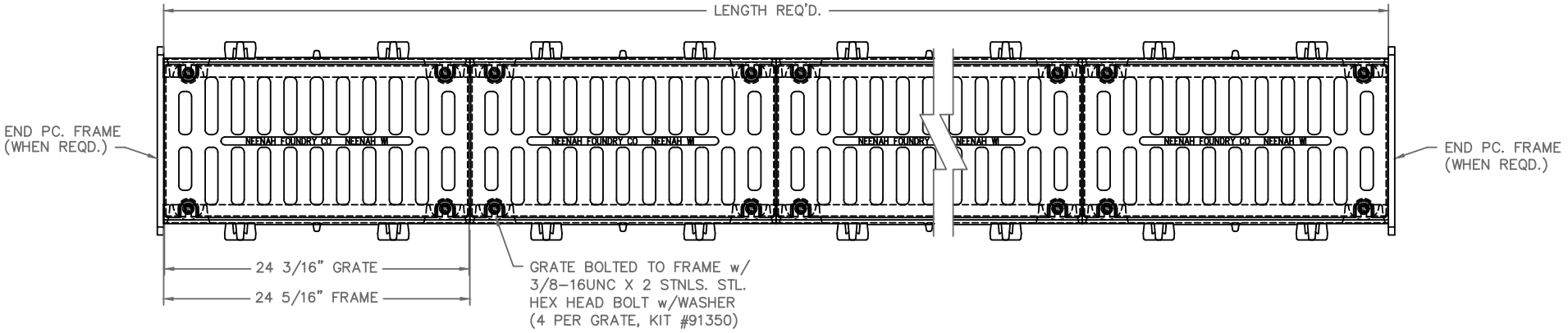
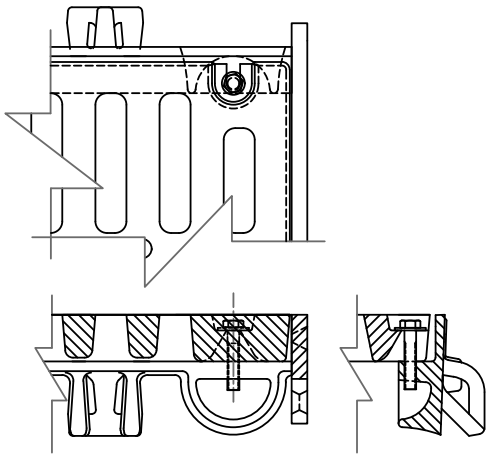
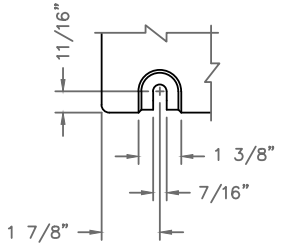
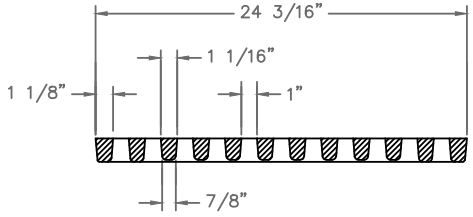


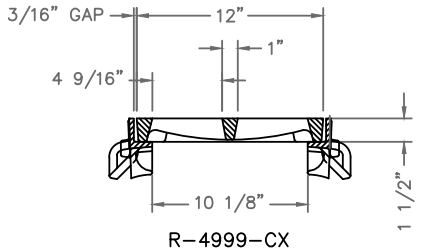


FRAME & GRATE
SHOWING DEBRIS CHUTE
SCALE 1:4



BOLT SLOT DETAIL
SCALE 1:4





R-4999-CX
TYPE "A" GRATE
WITH TYPE "B" FRAME
TYPICAL SECTION

NOTES: FRAMES AND COVERS ARE FURNISHED IN STANDARD 2'-0" INCREMENTS. SPECIAL LENGTH FRAMES AND COVERS ARE FURNISHED FOR ANY OVERALL LENGTH.

COMPONENT NOS.: GRATE 4999-3121, SIDE PC. FRAME 4999-2415, END PC. FRAME 4990-3112 (IF REQUIRED)

MATERIAL: SIDE PC. FRAMES - CAST GRAY IRON ASTM A-48, CLASS 35A
END PC. FRAMES AND GRATES - CAST GRAY IRON ASTM A-48, CLASS 35B

FINISH: NO PAINT

DR. K. HOGE	SCALE 1/8"=1"	TITLE: R-4999-CX TYPE "A" GRATE W/ TYPE "B" FRAME	
CH.			
APP.	DIM CHK.	NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956	NF-4999CX A B
DATE 12-11-08			

CAD DWG. REF: 4999CX A.DWG- 1

Trench Drain (Type A Grate) - 120361

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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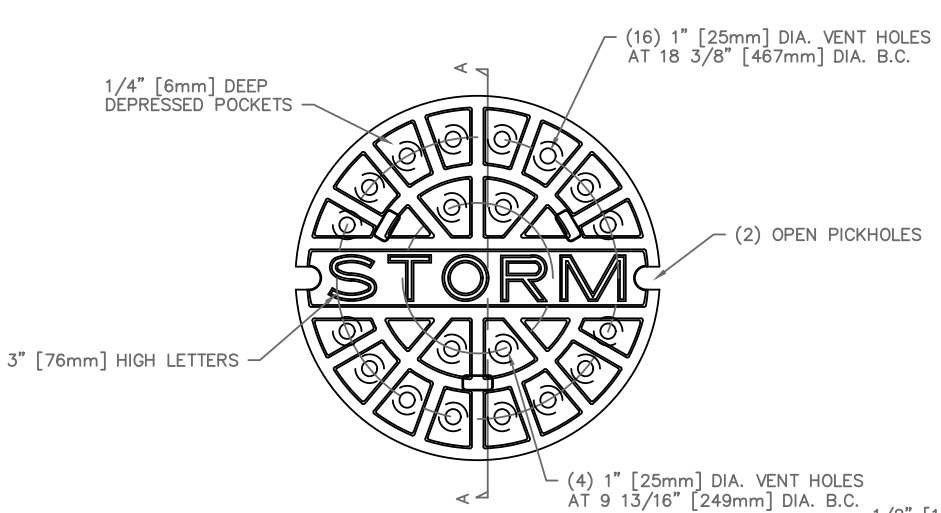
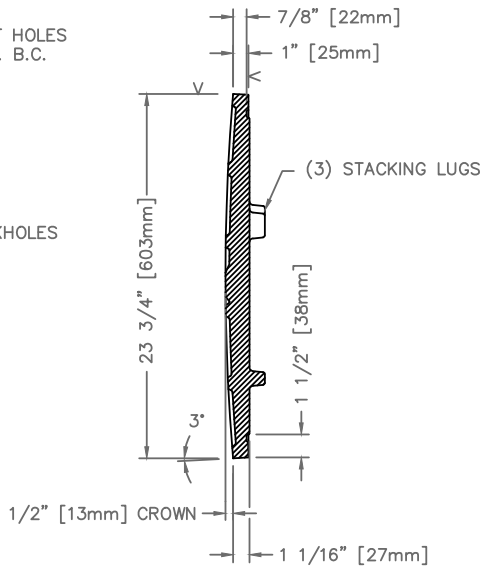
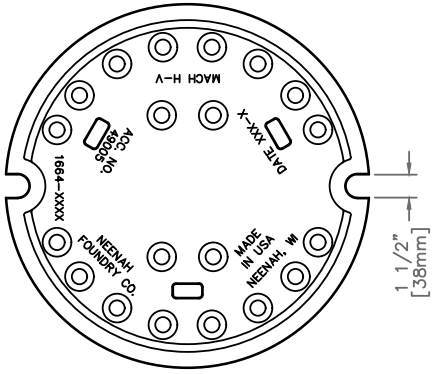
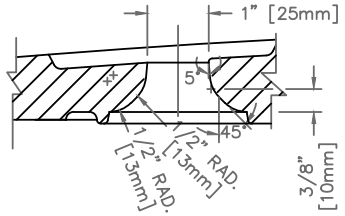




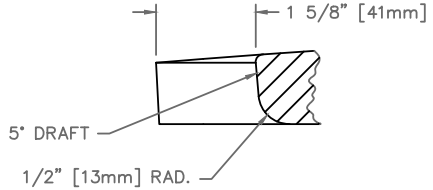
SECTION A–A



UNDERSIDE VIEW OF LID



VENT HOLE DETAIL
SCALE 1:2



OPEN PICKHOLE DETAIL
SCALE 1:2

NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH
COMPONENT NOS.: 1664–XXXX
EQUIPMENT NOS.: D22224897, K22224896
MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 119#

DR. CAG	SCALE 1/8"=1"	TITLE: R–1664 PLATEN LID, LTRD. "STORM"	
CH. RKB			
APP. SPT	NEENAH FOUNDRY		
DATE 1/8/2014	NEENAH WISCONSIN 54956 PHONE 800–558–5075	NF-1664T06	B
www.neenahfoundry.com	LINCOLN, NEBRASKA 68529 PHONE 800–234–7466		

CAD DWG. REF: 1664T06.DWG– 1

Storm Manhole Cover - 120362

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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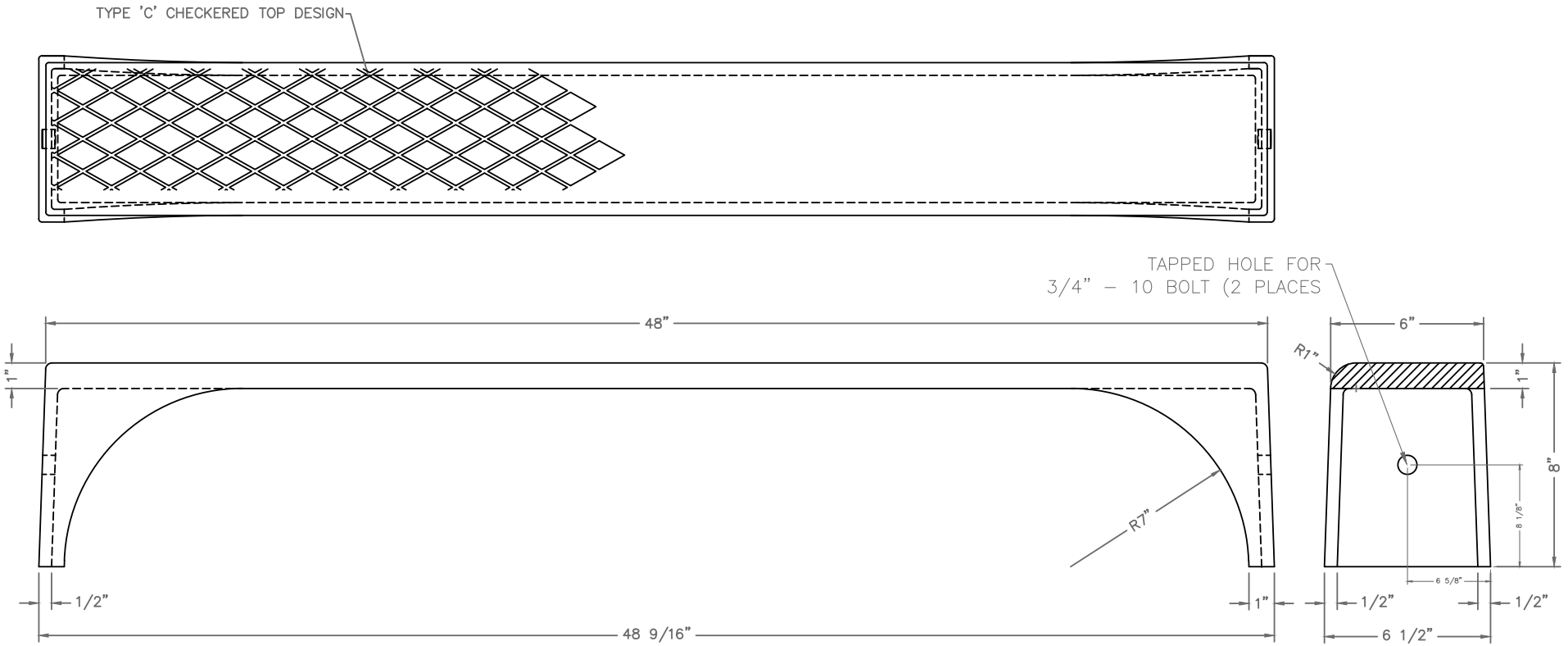

FRONT AND BACK VIEW

MATERIAL: CAST GRAY IRON ASTM A–48, CLASS 35B
FINISH: NOT PAINTED
WEIGHT: APPROX. 87#

DR. E. REMME	SCALE 1/4"=1"	TITLE: CURB BOX WITH THRU OPENING FOR: CITY OF CINCINNATI ENGINEERING	
CH.			
APP.	DIM CHK.	NEENAH FOUNDRY COMPANY NEENAH WISCONSIN 54956	NF- 00004314 B
DATE 09–10–2009			

CAD DWG. REF: 00004314.DWG– 1

Pass Through Curb Plate - 120363

Or Stormwater Approved Substitution

Approved Eric Saylor

City Stormwater Management Engineer

A Division of Greater Cincinnati Water Works

CINCINNATI STORMWATER MANAGEMENT UTILITY

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