
ORIGINATION FORM

Proposed Revisions to a Standard Plans Index (Please provide all information — Incomplete forms will be returned)

Contact Information:

Date: November 1, 2019

Originator: Rick Jenkins

Phone: (850) 414-4355

Email: Rick.Jenkins@dot.state.fl.us

Standard Plans:

Index Number: 425-052

Sheet Number (s): ALL

Index Title: Ditch Bottom Inlet Types C, D, E, and H

Summary of the changes:

Reorganized Index, Added additional Sheets.

Sheet 1: General Notes

Sheet 2: Type C - Dimensional, Reinforcement , and Grate Details

Sheet 3: Type D - Dimensional, Reinforcement , and Grate Details

Sheet 4: Type E - Dimensional, Reinforcement , and Grate Details

Sheet 5: Type H (2 & 3 Grate) - Dimensional, Reinforcement , and Grate Details

Sheet 6: Type H (4 Grate) - Dimensional, Reinforcement , and Grate Details

Sheet 7: Cast Iron Grate Details

Sheet 8: Non-Traversable Inlets Details

Sheet 9: Traversable Inlet Without Slot Details

Sheet 10: Traversable Inlet With Slot Details

Sheet 11: Case 1 - Add Traversable Slots to Existing Inlets

Commentary / Background:

Sheet 12: Case 2 - Add Traversable Slots (Partial) to Existing Inlets

Sheet 13: Case 3 - Add Traversable Slots (Partial) to Existing Inlets and Ditch Block

Sheet 14: Alternate A Structure Bottom Slab Details

**Other Affected Offices / Documents:** (Provide name of person contacted)

- | Yes | No | |
|--------------------------|--------------------------|-----------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Other Standard Plans – |
| <input type="checkbox"/> | <input type="checkbox"/> | FDOT Design Manual – |
| <input type="checkbox"/> | <input type="checkbox"/> | Basis of Estimates Manual – |
| <input type="checkbox"/> | <input type="checkbox"/> | Standard Specifications – |
| <input type="checkbox"/> | <input type="checkbox"/> | Approved Product List – |
| <input type="checkbox"/> | <input type="checkbox"/> | Construction – |
| <input type="checkbox"/> | <input type="checkbox"/> | Maintenance – |

Origination Package Includes:

(Email or hand deliver package to Rick Jenkins)

- | Yes | N/A | |
|-------------------------------------|--------------------------|------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Redline Mark-ups |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Proposed Standard Plan Instruction (SPI) |
| <input type="checkbox"/> | <input type="checkbox"/> | Revised SPI |
| <input type="checkbox"/> | <input type="checkbox"/> | Other Support Documents |

Implementation:

- | | |
|-------------------------------------|----------------------------------|
| <input type="checkbox"/> | Design Bulletin (Interim) |
| <input type="checkbox"/> | DCE Memo |
| <input type="checkbox"/> | Program Mgmt. Bulletin |
| <input checked="" type="checkbox"/> | FY-Standard Plans (Next Release) |

Contact the Roadway Design Office for assistance in completing this form

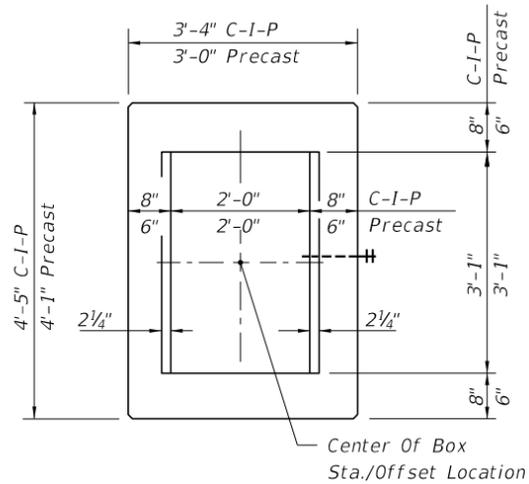
NEW SHEET
GENERAL NOTES AND OVERVIEW

NEW SHEET

TYPE C - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS

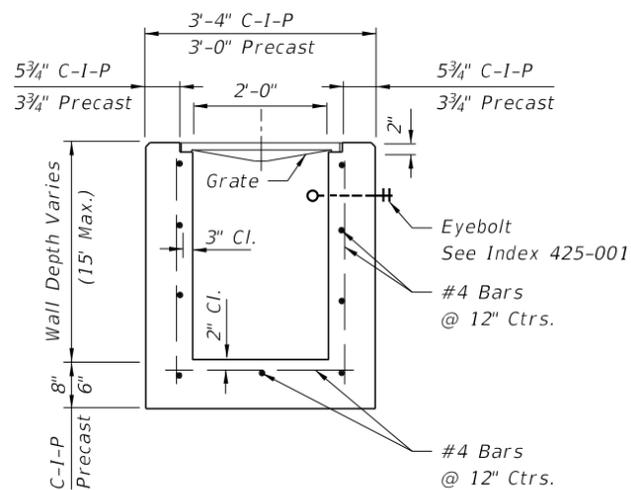
NEW SHEET

TYPE D - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS



PLAN

MOVED TO SHEET 2



SECTION

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 1)

TABLE 1

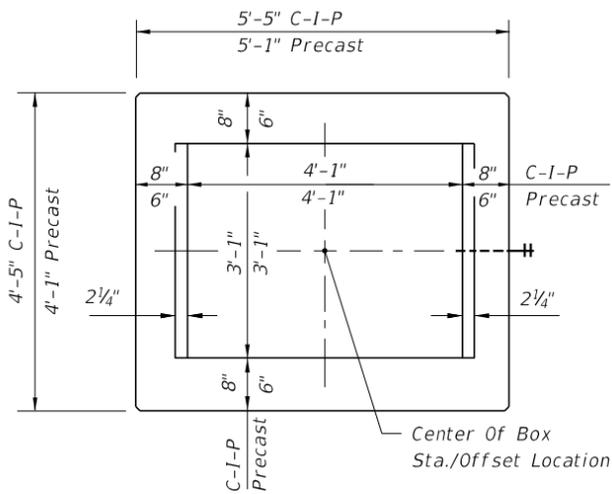
WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWF
0'-15'	A12	0.20	12"	8"

TYPE C

Recommended Maximum Pipe Size:

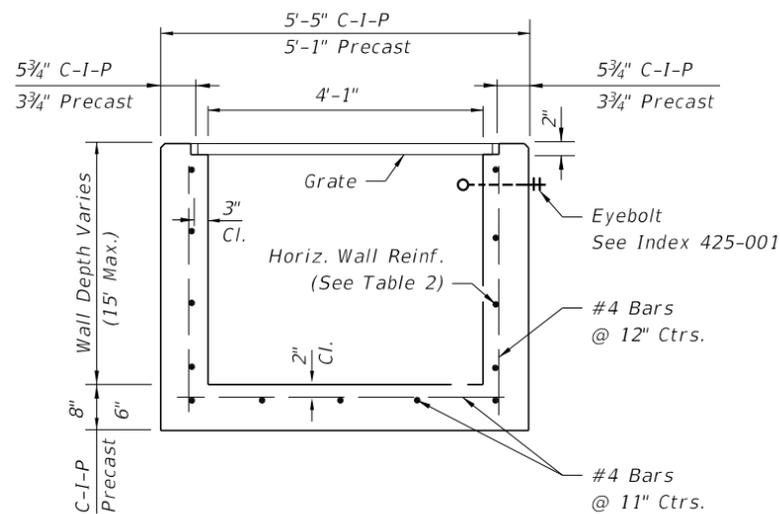
2'-0" Wall - 18" Pipe
3'-1" Wall - 24" Pipe (1 enters a 2'-0" wall)

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PLAN

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SECTION

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 2)

TABLE 3

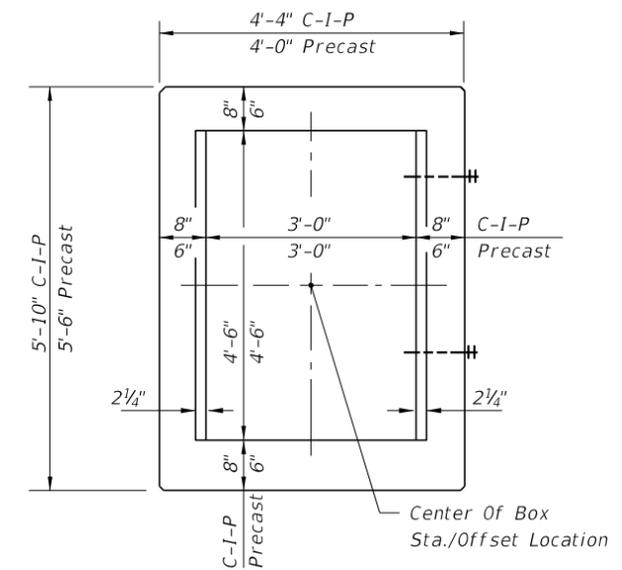
WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWF
0'-6'	A12	0.20	12"	8"
6'-10'	A6	0.20	6"	5"
10'-13'	A4	0.20	4"	3"
10'-15'	B5.5	0.24	5 1/2"	5"

TYPE D

Recommended Maximum Pipe Size:

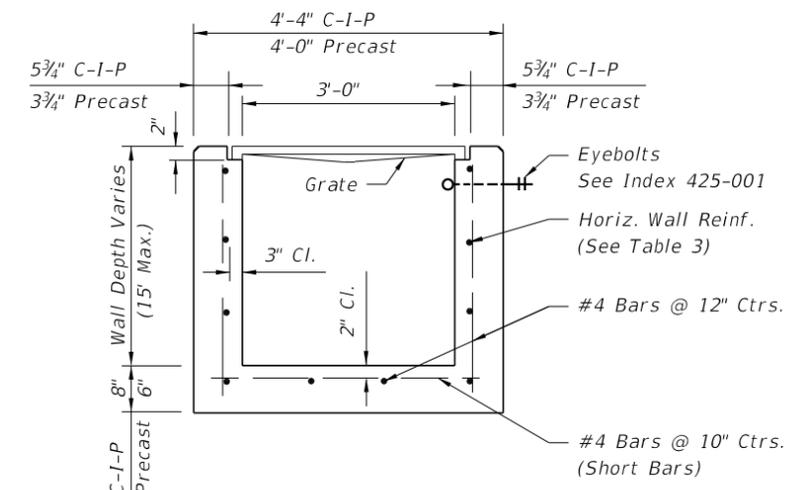
3'-1" Wall - 24" F
4'-1" Wall - 36" Pipe

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PLAN

NEW SHEET 4



SECTION

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 3)

TABLE 5

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWF
0'-5'	A12	0.20	12"	8"
0'-7.5'	A6	0.20	6"	5"
7.5'-10'	B5.5	0.24	5 1/2"	5"
10'-15'	C6.5	0.37	6 1/2"	6"

TYPE E

Recommended Maximum Pipe Size:

3'-0" Wall - 24" F
4'-6" Wall - 36" Pipe

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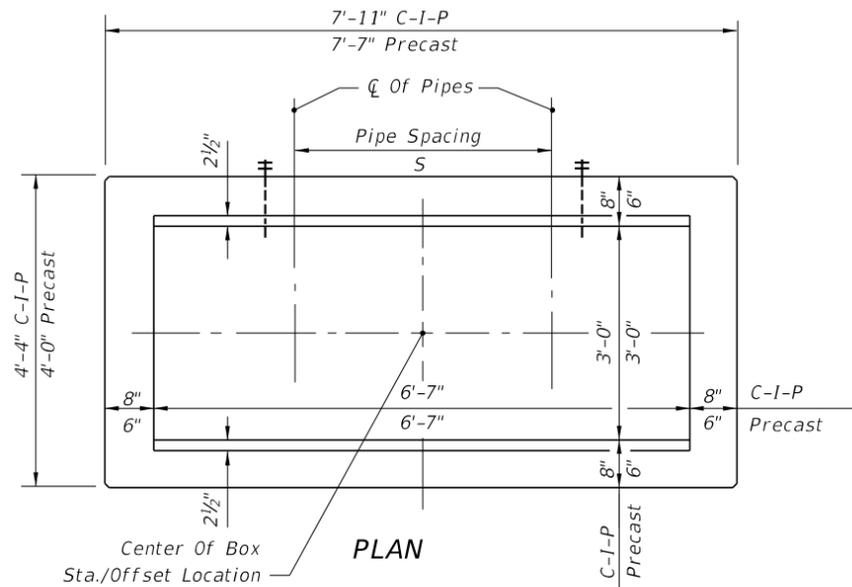
DITCH BOTTOM INLET TYPES C, D, E AND H

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SHEET
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NEW SHEET

TYPE H (2 & 3 GRATES) - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS



MOVED TO SHEET 5

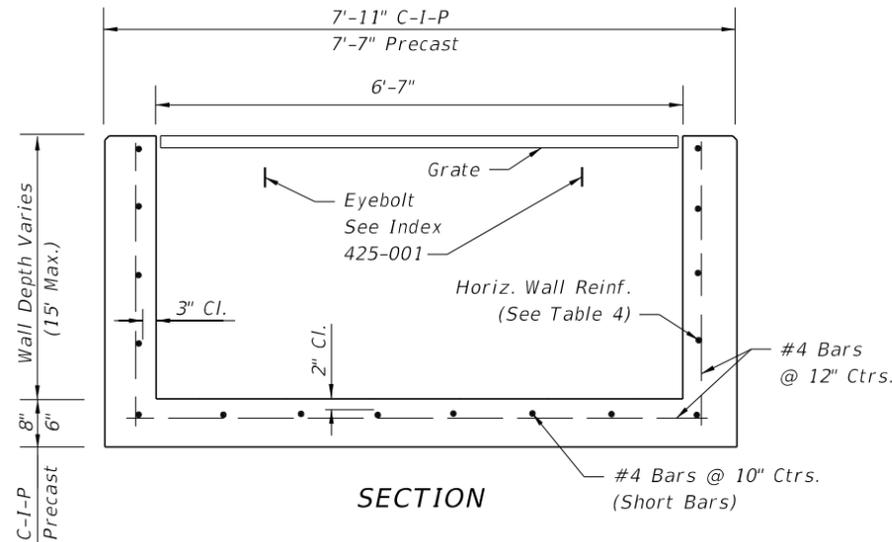


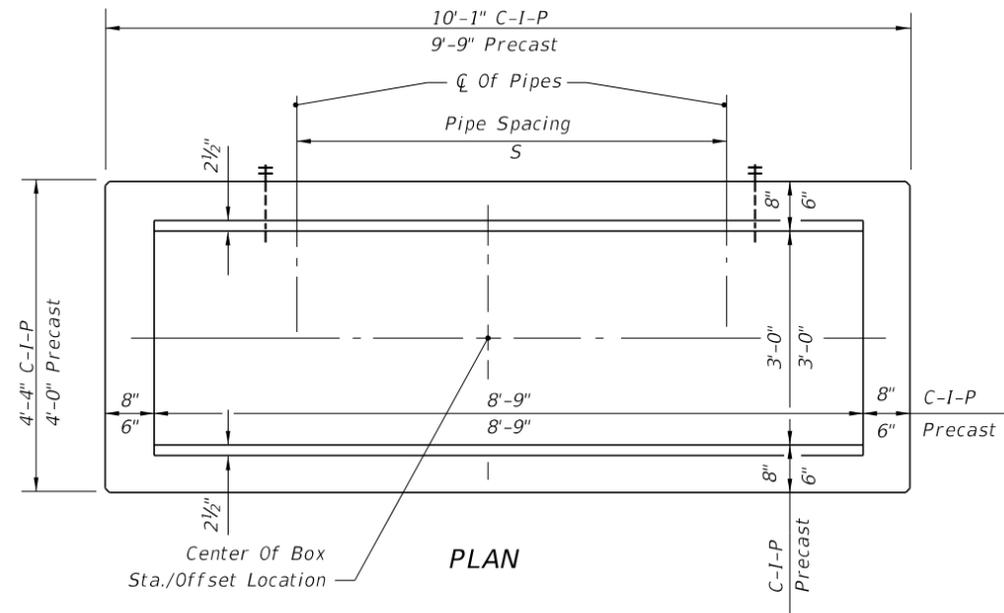
TABLE 4 HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 4)

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWF
0'-5'	B5.5	0.24	5½"	5"
5'-7'	C6.5	0.37	6½"	6"
7'-15'	D4.5	0.53	4½"	4"

TYPE H (2 & 3-GRATE INLET)

Recommended Maximum Pipe Size:
 3'-0" Wall - 24" Pipe
 6'-7" Wall - 1-60" Pipe
 Or 2-24" Pipe (S=3'-5")

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NEW SHEET 6

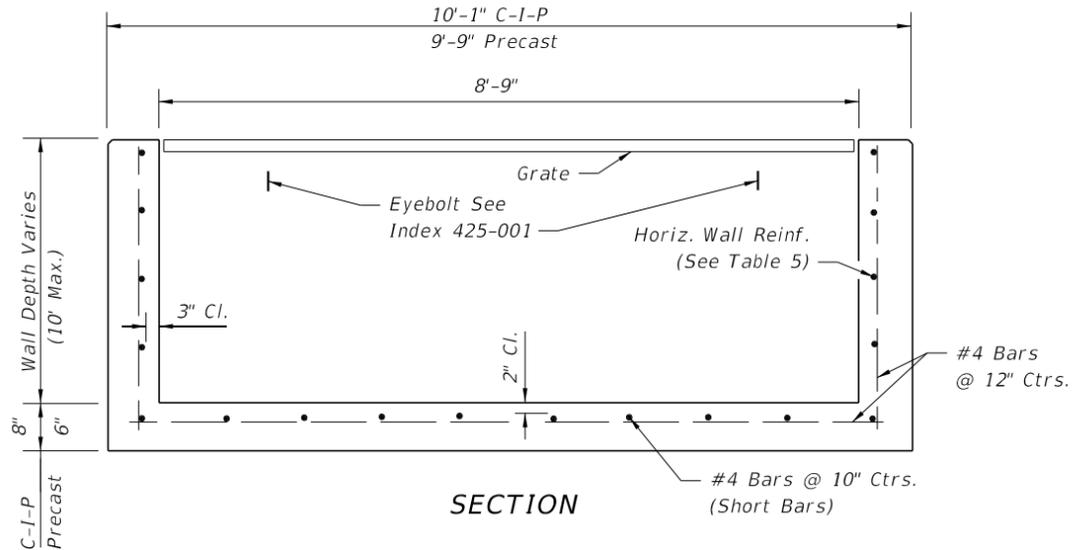


TABLE 5 HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 5)

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWF
0'-5'	C3.5	0.37	3½"	3"
5'-10'	D4.5	0.53	4½"	4"

TYPE H (4-GRATE INLET)

Recommended Maximum Pipe Size:
 3'-0" Wall - 24" Pipe
 8'-9" Wall - 1-78" Pipe
 Or 2-30" Pipe (S=4'-3")

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GENERAL NOTES
See Sheet 3 of 7.

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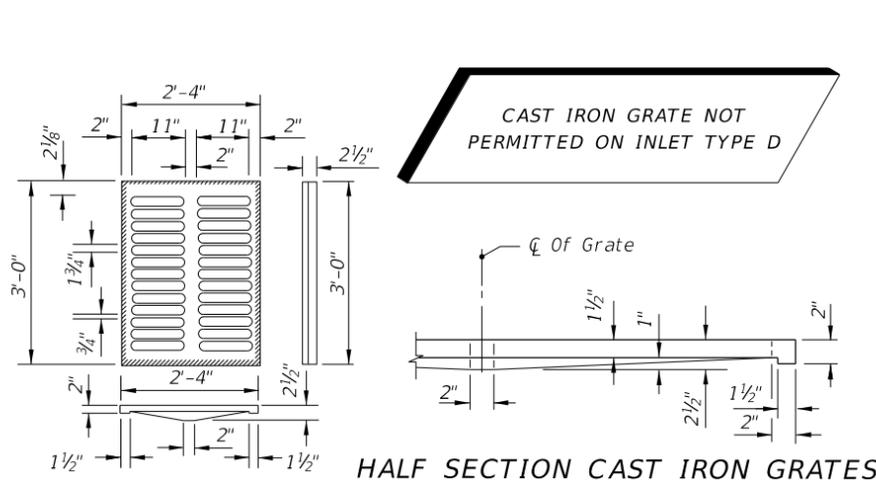


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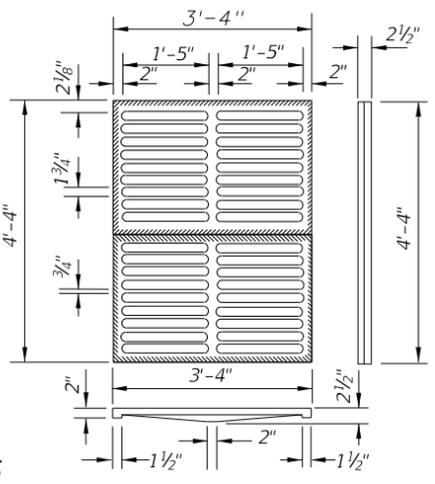
DITCH BOTTOM INLET TYPES C, D, E AND H

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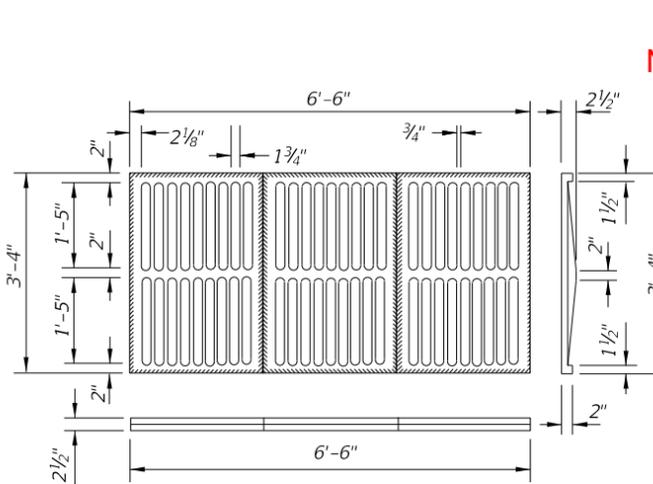
SHEET
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TYPE C
Approx. Weight 235 Lbs.

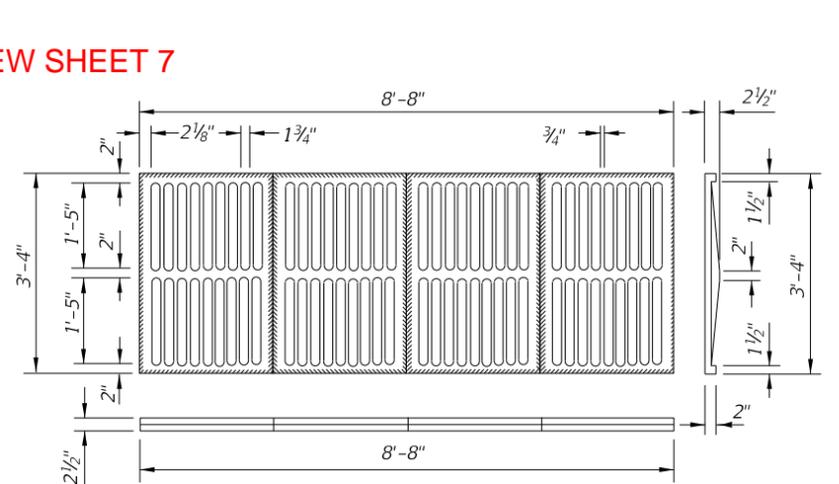


TYPE E
Approx. Weight 465 Lbs.



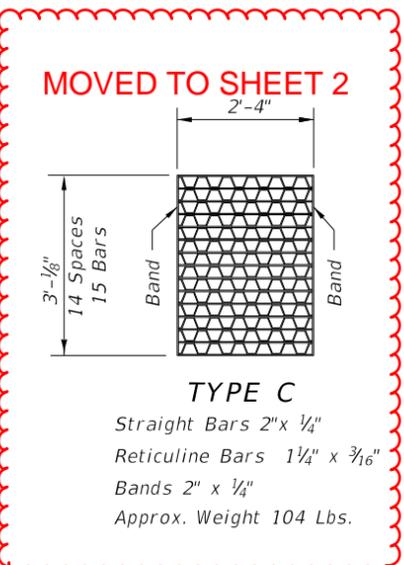
TYPE H (3-GRATE INLET)
Approx. Weight 725 Lbs.

NEW SHEET 7



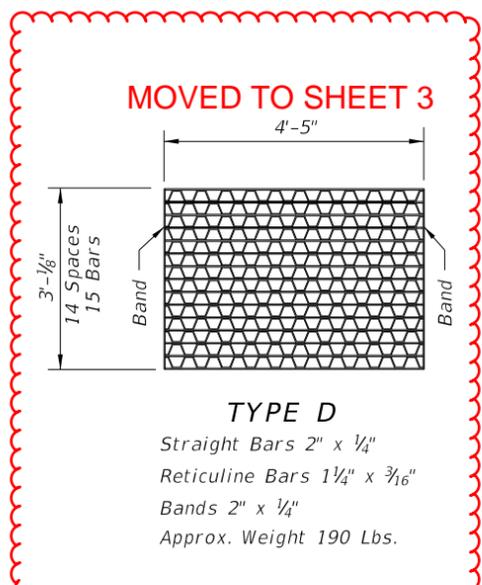
TYPE H (4-GRATE INLET)
Approx. Weight 967 Lbs.

CAST IRON GRATES



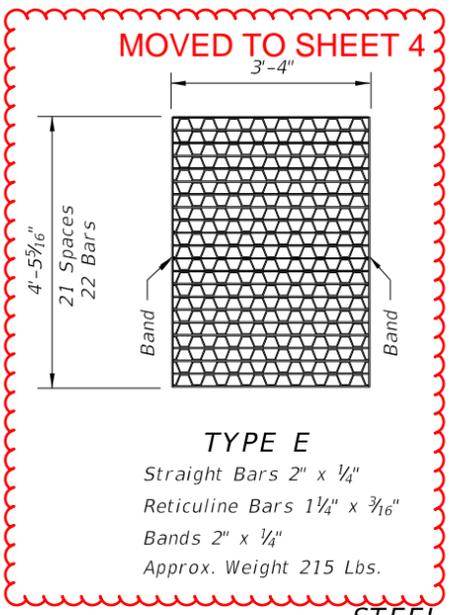
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TYPE C
Straight Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Bands 2" x 1/4"
Approx. Weight 104 Lbs.



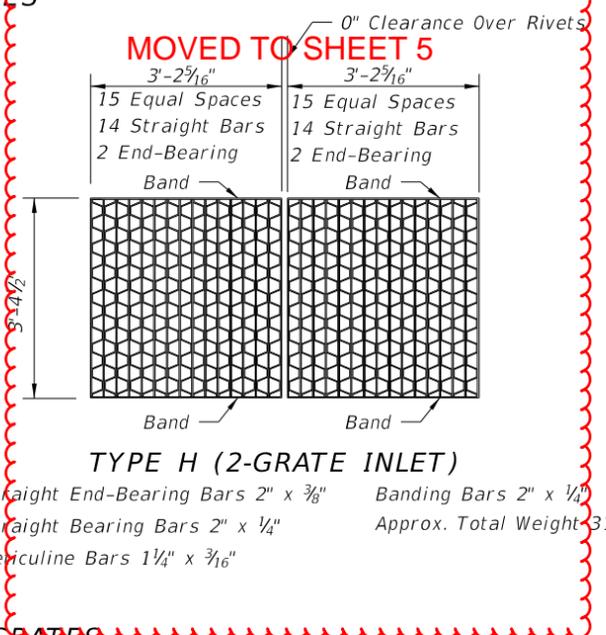
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TYPE D
Straight Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Bands 2" x 1/4"
Approx. Weight 190 Lbs.



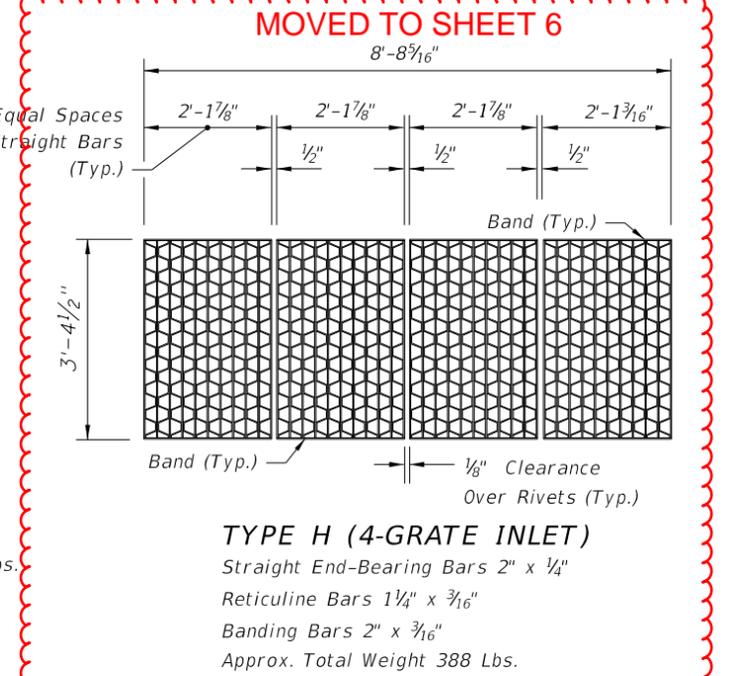
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TYPE E
Straight Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Bands 2" x 1/4"
Approx. Weight 215 Lbs.



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TYPE H (2-GRATE INLET)
Straight End-Bearing Bars 2" x 3/8"
Straight Bearing Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Banding Bars 2" x 1/4"
Approx. Total Weight 310 Lbs.



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TYPE H (4-GRATE INLET)
Straight End-Bearing Bars 2" x 1/4"
Reticuline Bars 1 1/4" x 3/16"
Banding Bars 2" x 3/16"
Approx. Total Weight 388 Lbs.

STEEL GRATES

NOTE: Steel Grates Are Required On Inlets With Traversable Slots And On Inlets where Bicycle Traffic Is Anticipated.

GENERAL NOTES

- These inlets are suitable for bicycle traffic and are to be used in ditches, medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to any heavy wheel loads. These inlets may be placed in areas subject to occasional pedestrian traffic such as landscaped areas and pavement areas where pedestrians can walk around the inlet.
- Inlets subject to minimal debris should be constructed without slots. Where debris is a problem inlets should be constructed with slots. Slotted inlets located within roadway clear zones and areas subject to pedestrians shall have traversable slots. The traversable slot modification is not adaptable to inlet Type H. Slots may be constructed at either or both ends as shown on plans. Traversable slots shall not be used in areas subject to occasional bicycle traffic.
- Steel grates are to be used on all inlets where bicycle traffic is anticipated. Steel grates are to be used on all inlets with traversable slots. Either cast iron or steel grates may be used on inlets without slots where bicycle traffic is not anticipated. Either cast iron or steel grates may be used on all inlets with

SPI

- non-traversable slots. Subject to the selection described above, when Alternate G grate is specified in the plans, either the steel grate, hot dip galvanized after fabrication, or the cast iron grate may be used, unless the plans stipulate the particular type.
- Recommended maximum pipe sizes shown are for concrete pipe. Size for other types of pipe must be checked for fit.
- All exposed edges and corners shall be 3/4" chamfer or tooled to 1/4" radius.
- Concrete inlet pavement to be used on inlets without slots and inlets with non-traversable slots only when called for in the plans; but required on all traversable slot inlets. Cost to be included in contract unit price for inlets. Quantities shown are for information only.
- Traversable slots constructed in existing inlets shall be paid for as inlets partial. For conversion work and method of payment see 'TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS'.

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- Sodding to be used on all inlets not located in paved areas and paid for under contract unit price for Performance Turf, SY.
- For supplementary details see Index 425-001.
- All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. Bars to be cut or bent for 1 1/2" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.

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NEW SHEET

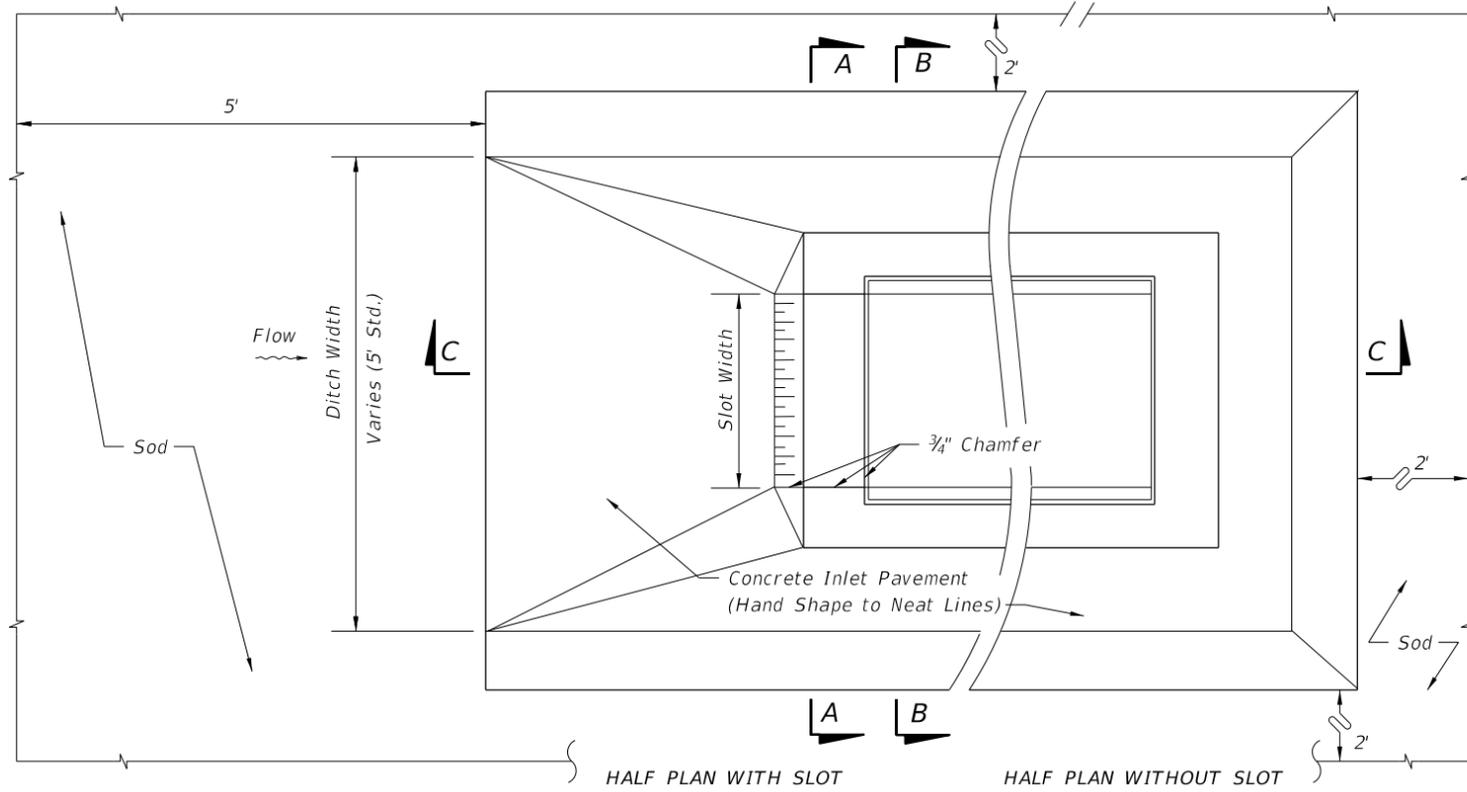
NON-TRAVERSABLE INLETS DETAILS

NEW SHEET

TRAVERSABLE INLETS WITHOUT SLOT DETAILS

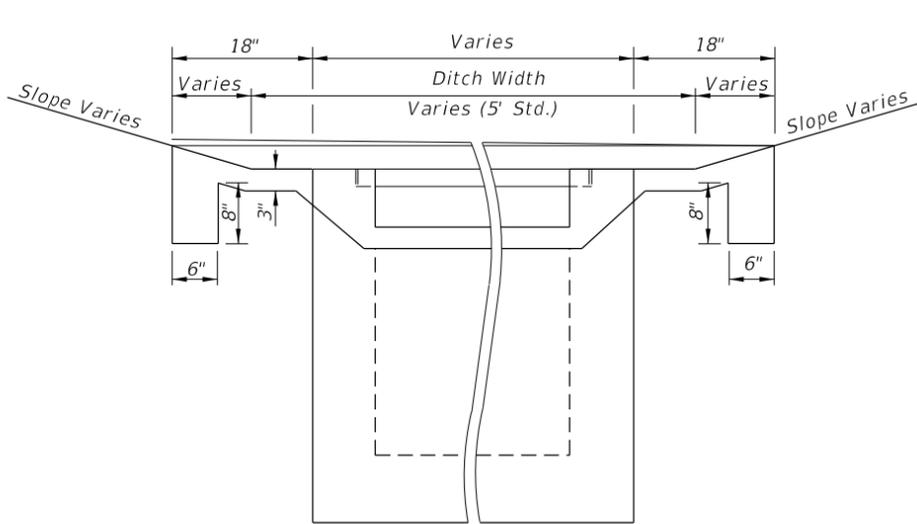
NEW SHEET

TRAVERSABLE INLETS WITH SLOT DETAILS

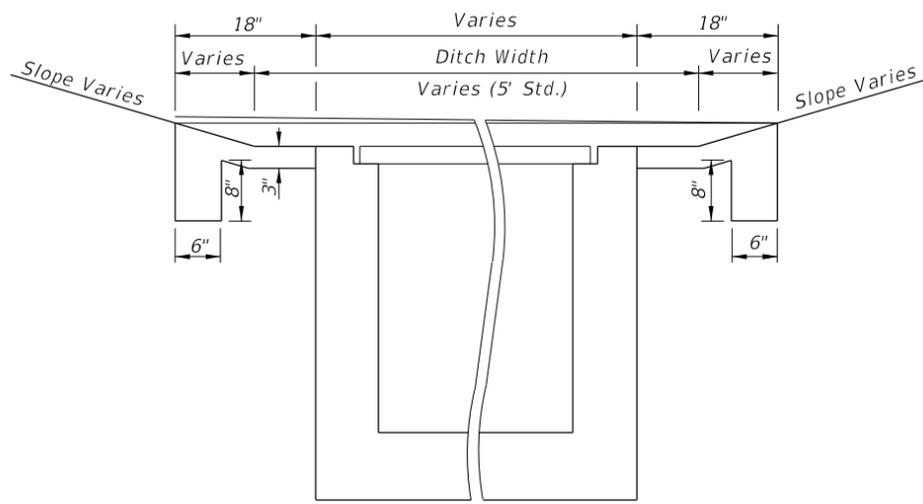


PLAN VIEW

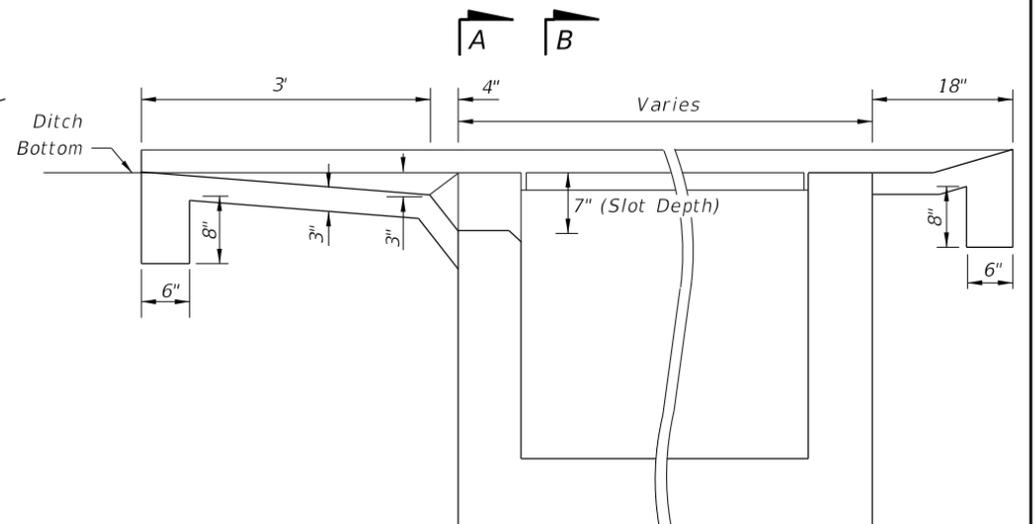
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SECTION AA



SECTION BB



SECTION CC

TABLE 6-8

PAVEMENT AND SODDING QUANTITIES FOR TRAVERSABLE SLOTS						
Inlet	Pavement				Sod	
	Single Slot		Double Slot		Single Slot	Double Slot
	SY	CY	SY	CY	SY	SY
C	4.87	0.77	6.16	0.93	12	16
D	5.99	0.91	7.70	1.10	14	19
E	5.88	0.91	7.37	1.08	14	18

TRAVERSABLE SLOTS

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DITCH BOTTOM INLET TYPES C, D, E AND H

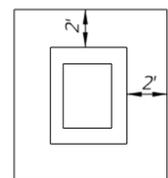
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TABLE 9

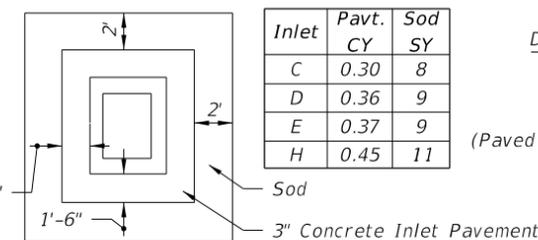
Inlet	Sod SY
C	6
D	6
E	7
H	8

TABLE 10

Inlet	Pavt. CY	Sod SY
C	0.30	8
D	0.36	9
E	0.37	9
H	0.45	11



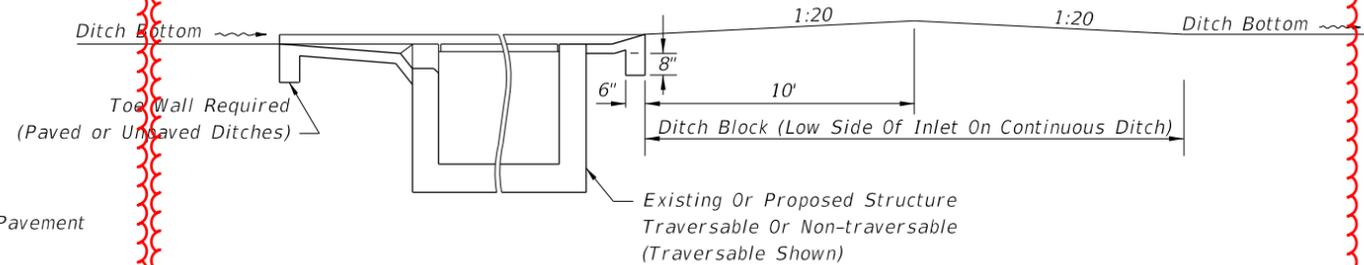
SOD ONLY



PAVT. AND SOD

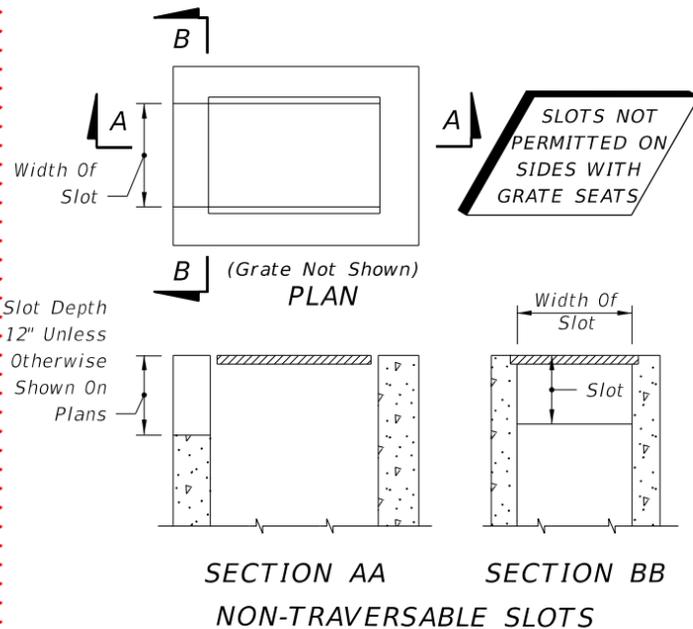
NOTE: See General Notes Nos. 6 and 7, Sheet 3 of 7.
SODDING AND PAVEMENT FOR INLETS WITHOUT SLOTS AND INLETS WITH NON-TRAVERSABLE SLOTS

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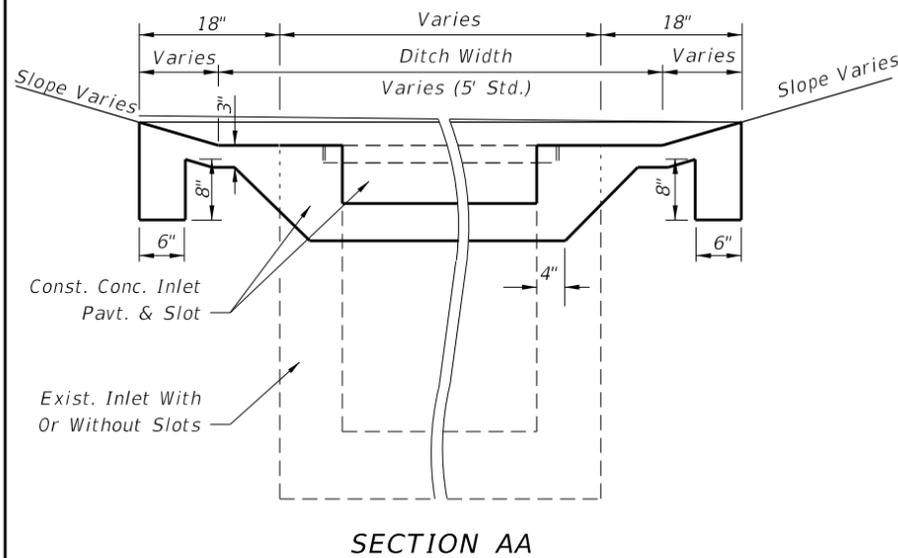


DITCH BLOCK FOR INLETS WITH OR WITHOUT SLOTS

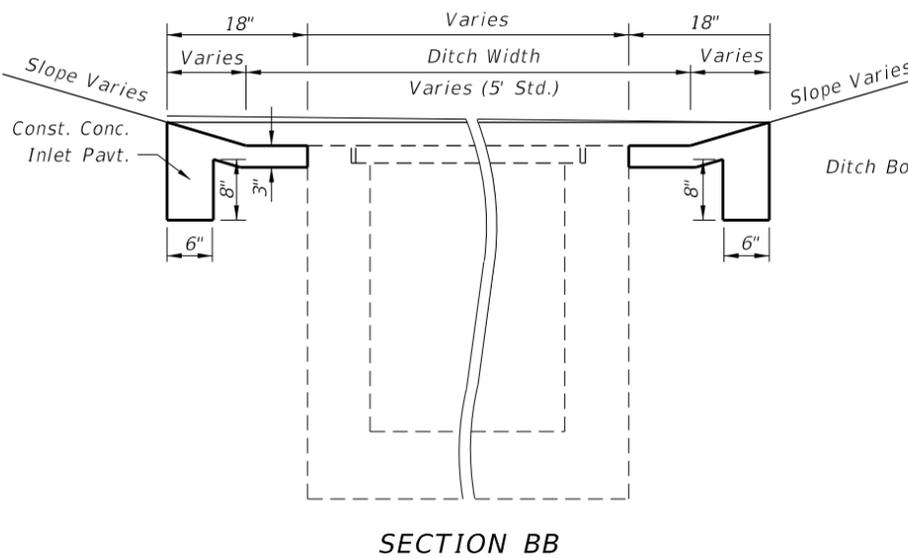
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**SECTION AA SECTION BB
NON-TRAVERSABLE SLOTS**



SECTION AA



SECTION BB

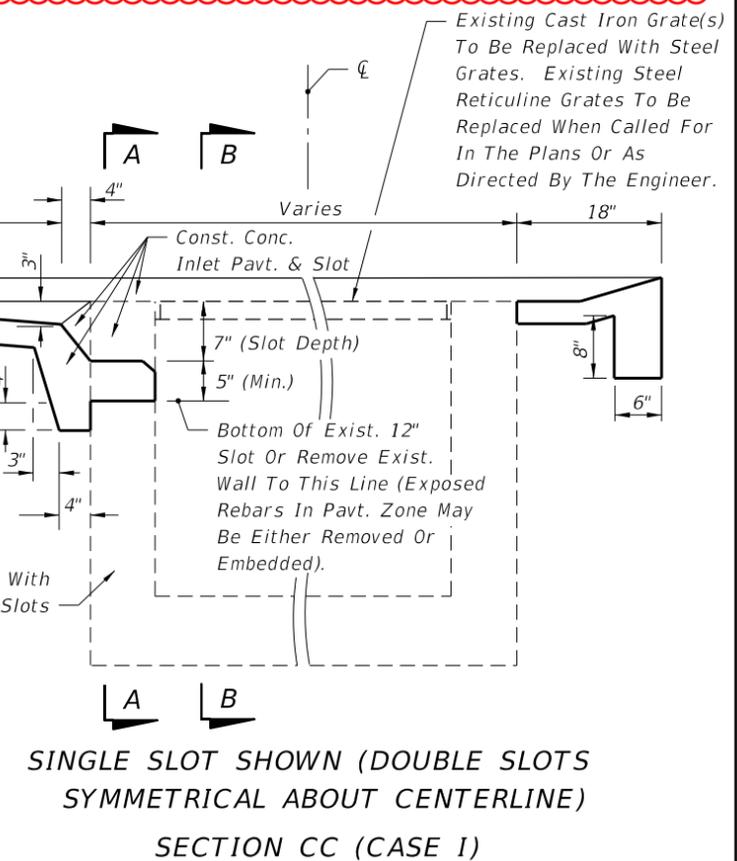
TABLE 6-8

Inlet	Pavement				Sod	
	Single Slot		Double Slot		Single Slot	Double Slot
	SY	CY	SY	CY	SY	SY
C	4.87	0.83	6.16	1.05	12	16
D	5.99	1.01	7.70	1.30	14	19
E	5.88	0.99	7.37	1.24	14	18

NOTE: For plan view and additional details see Sheet 4 of 7.
 For payment see General Notes Nos. 6 and 7, Sheet 3 of 7.

TRAVERSABLE SLOTS FOR EXISTING INLETS

CASE I - ADD TRAVERSABLE SLOTS TO EXISTING INLETS



**SINGLE SLOT SHOWN (DOUBLE SLOTS SYMMETRICAL ABOUT CENTERLINE)
SECTION CC (CASE I)**

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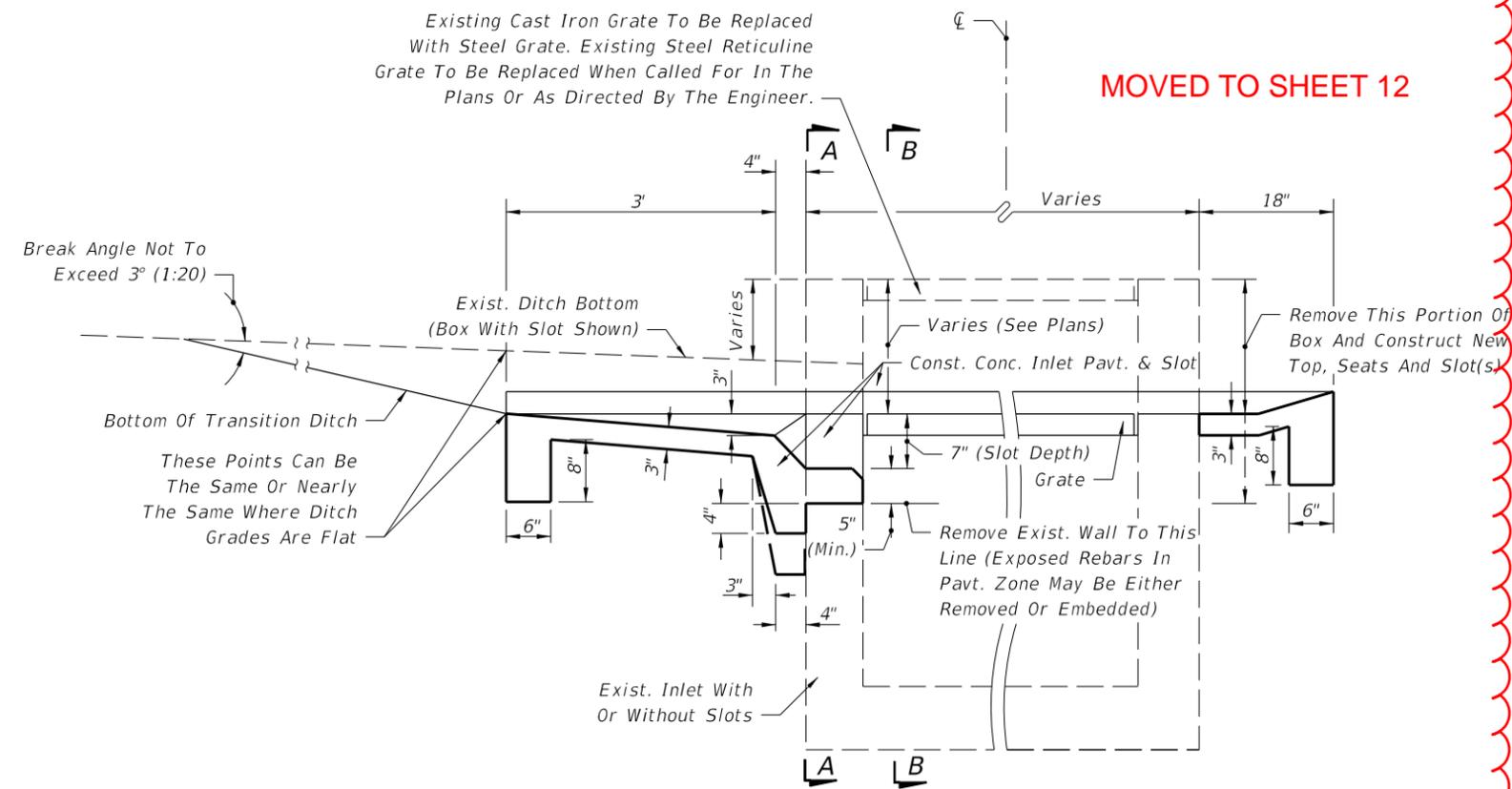
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DITCH BOTTOM INLET TYPES C, D, E AND H

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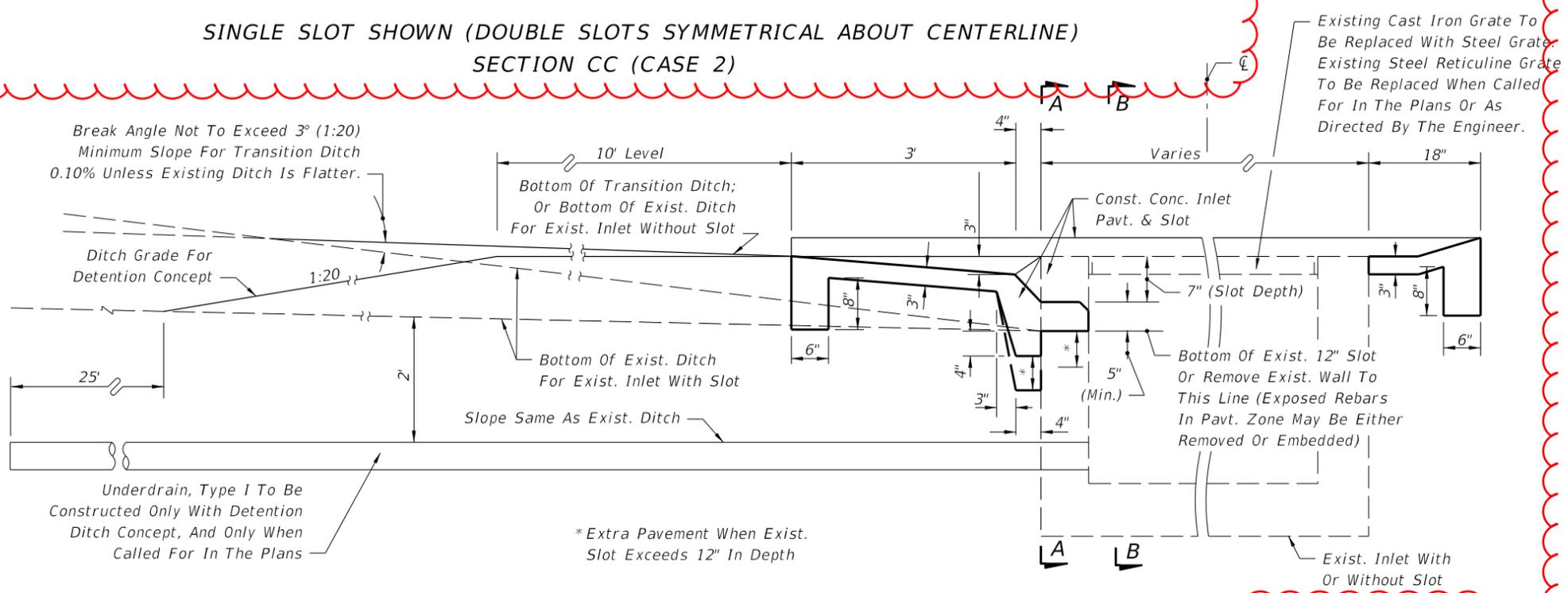
NEW SHEET

CASE 2 - ADD TRAVERSABLE SLOTS (PARTIAL) TO EXISTING INLETS



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SINGLE SLOT SHOWN (DOUBLE SLOTS SYMMETRICAL ABOUT CENTERLINE)
SECTION CC (CASE 2)



SINGLE SLOT SHOWN (DOUBLE SLOTS SYMMETRICAL ABOUT CENTERLINE)
SECTION CC (CASE 3)
NEW SHEET 13
TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS

ADDED DITCH BLOCK DETAILS

DESIGN NOTES FOR TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS

1. The general purpose of these conversions is to remove the hazard of the protruding inlet top, while not creating a hazard by depressing the top too deeply.
2. The corrective procedure depends on the approach ditch grade and hydraulic requirements of the site. The selection of the appropriate case depends on the relationship between inlet top and ditch elevation, and, on the vertical clearance between the top of the uppermost pipe(s) and the grate. The purpose for the Case 1 conversion is to add the traversable slot to an existing inlet where top removal, change in grate elevation and ditch transitions are not required. Case 2 will normally be applicable to ditches with flatter grades adjoining the inlet. Case 3 will normally be applicable to ditches with steeper grades adjoining the inlet where build up of the existing ditch is acceptable.
3. The designer shall stipulate in the plans which case is to be constructed at each individual inlet location.

Where the existing inlet top is above the existing ditch (Case 2) but borrow material will be required to adjust the ditch (Case 3), and vertical clearance or other conditions do not prevent removal of the inlet top, the designer should call for Case 2. The designer shall determine if ditch reconstruction is required more than 35 feet beyond any traversable slot side and shall include separate pay items in the plans to cover the cost for that portion of required ditch reconstruction exceeding the 35 foot limit. The designer shall also determine whether ditch pavement is required for ditch restoration within the 35 foot limit and include that pavement under a pay item separate from the inlets partial.

When the detention ditch concept is to be used with Case 3, the designer shall stipulate 'Case 3 (Detention)' in the plans.

The designer shall determine whether light soil or other conditions at each individual inlet indicates the need for underdrain in Case 3 conversions and shall call for Underdrain, Type 1 in the plans.

METHOD OF PAYMENT FOR TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS

1. Existing inlets converted to traversable slot tops under Cases 1, 2 and 3 shall be paid for as inlets partial, each. Case shall not be included in the pay item description.
2. All ditch reconstruction work within 35 feet of each traversable slot conversion, whether required by these details or as a direct result of the conversion, shall be included as a part of the partial cost. Reconstruction work shall include excavation and removal of surplus materials or borrow materials in place, grading, compaction, shaping and restoration of disturbed turf. Sodding, ditch pavement and underdrain are not included as part of the inlet partial cost and are to be paid for separately.
3. Concrete inlet pavement and sodding shall be in accordance with the sections on this detail and with the Plan on Sheet 4 and Sections AA, BB and CC (as Case 1) and tabular quantities on Sheet 5.
4. Unit price and payment shall constitute full compensation for inlet conversion (including concrete inlet paving and replacement grate(s)), ditch reconstruction, restoration of disturbed turf, and shall be paid for under the contract price for Inlets (DT Bot) (Type __) (Partial), each.

Sodding shall be paid for under the contract unit price for Performance Turf, SY.

Ditch pavement shall be paid for separate from the inlet by pavement type(s) and unit(s) as called for in the plans.

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DITCH BOTTOM INLET TYPES C, D, E AND H

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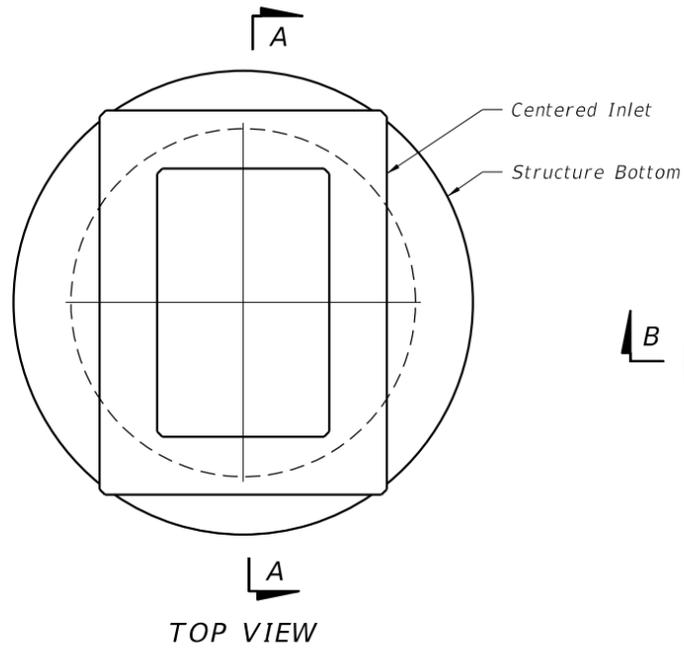
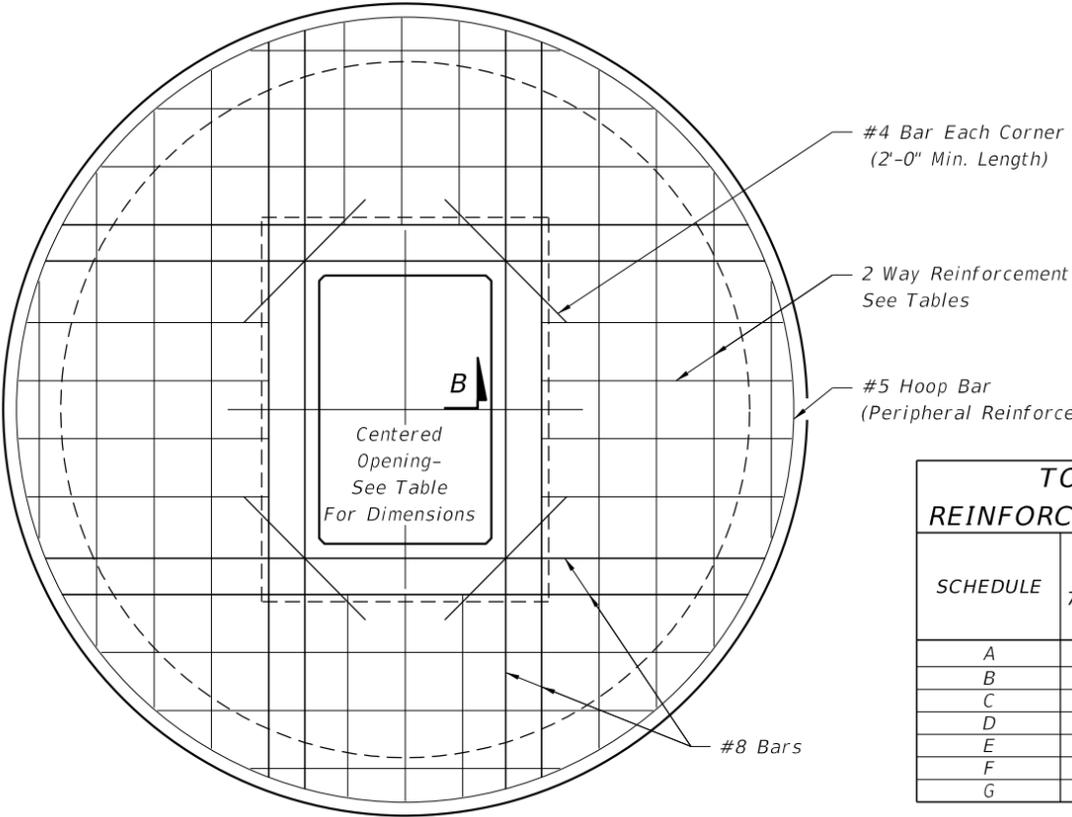


TABLE 11
TOP SLAB OPENINGS

DIAMETER	OPENING SIZE	
	MIN.	MAX.
4'-0"	2'-0" x 3'-1"	2'-0" x 3'-1"
5'-0"	2'-0" x 3'-1"	3'-1" x 4'-1"
6'-0"	2'-0" x 3'-1"	3'-0" x 4'-6"
8'-0"	2'-0" x 3'-1"	3'-0" x 4'-6"



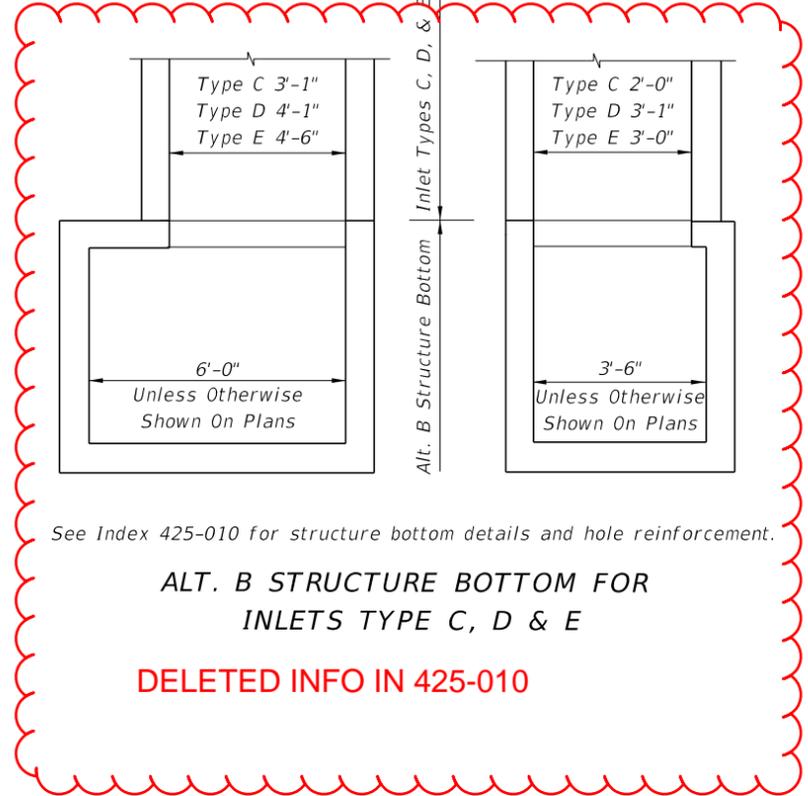
TOP SLAB REINFORCING DIAGRAM

TABLE 12
TOP SLAB REINFORCING SCHEDULE

SCHEDULE	GRADE 60 (BAR) OR 65 KSI & 70 KSI (WIRE FABRIC) In. ² /ft.
A	0.20
B	0.24
C	0.37
D	0.53
E	0.73
F	1.06
G	1.45

TABLE 13
TOP SLAB WITH CENTERED OPENING

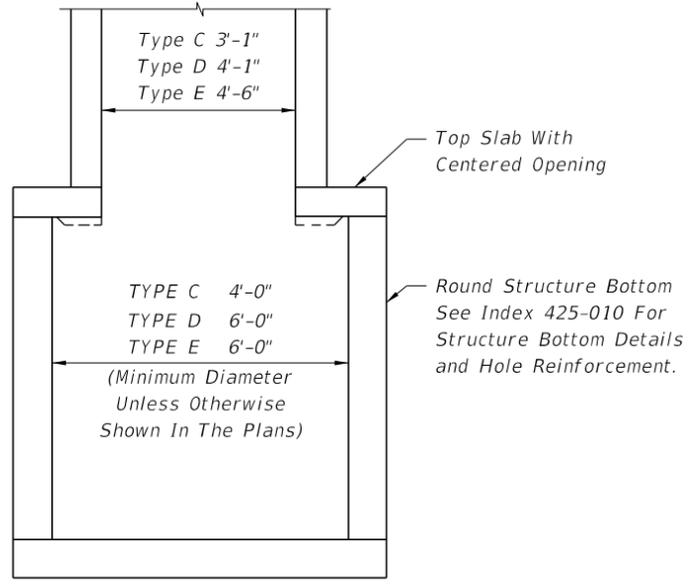
SLAB DEPTH	SLAB THICKNESS	REINFORCING (2 WAYS) SCHEDULE
SIZE: 4'-0"		
≥0.5'-40'	9½"	C
SIZE: 5'-0"		
≥0.5' < 30'	9½"	C
30'-40'	9½"	D
SIZE: 6'-0"		
0.5' < 8'	9½"	B
8' < 18'	9½"	C
18' < 30'	9½"	D
30' < 37'	9½"	E
37'-40'	9½"	G
SIZE: 8'-0"		
≥0.5' < 9'	11½"	C
9' < 15'	11½"	D
15' < 23'	11½"	E
23' < 33'	11½"	E
33'-40'	11½"	G



See Index 425-010 for structure bottom details and hole reinforcement.

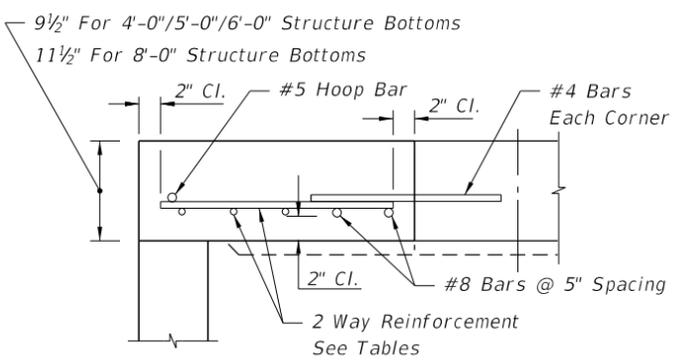
ALT. B STRUCTURE BOTTOM FOR INLETS TYPE C, D & E

DELETED INFO IN 425-010



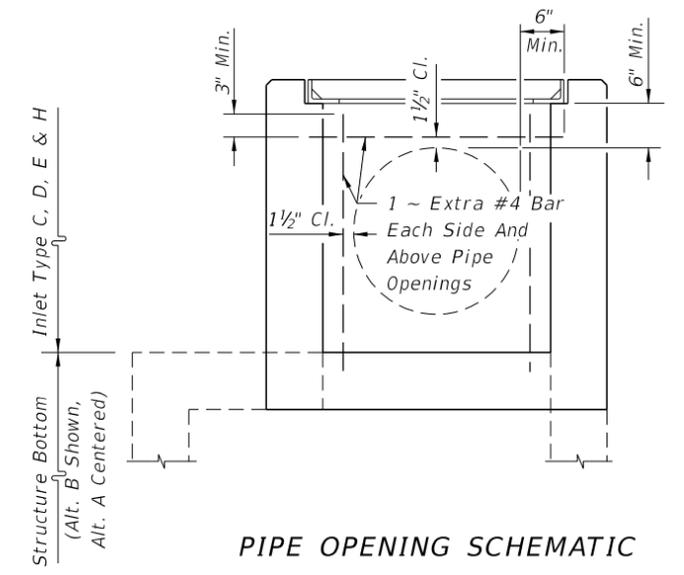
SECTION AA

Added Ref. Note to see Index 425-010



SECTION BB

ALT. A STRUCTURE BOTTOM FOR INLETS TYPE C, D AND E



PIPE OPENING SCHEMATIC

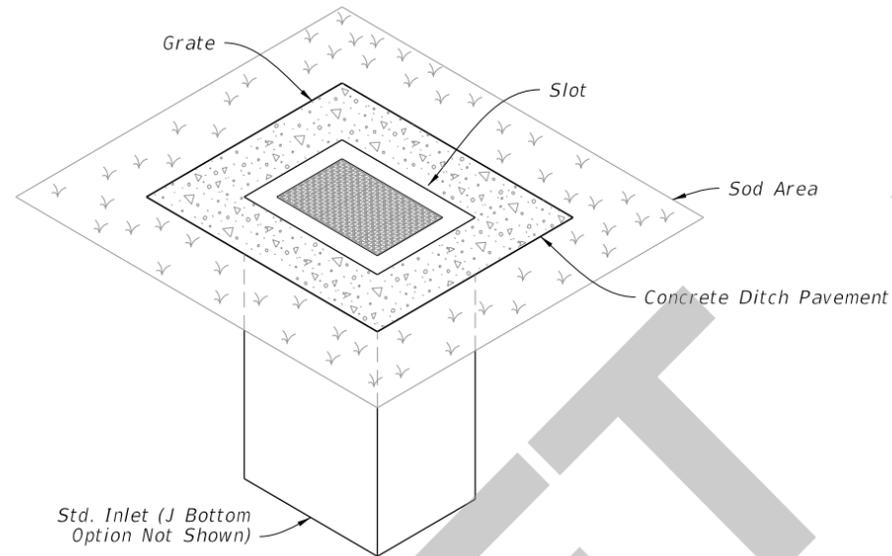
RENUMBERED 14 of 14

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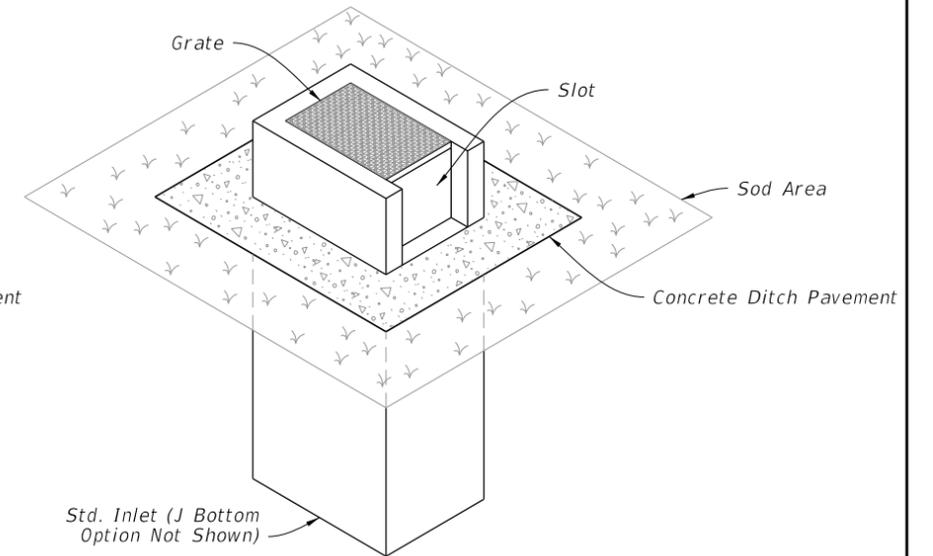
LAST REVISION 11/01/17	DESCRIPTION: 11/01/20	FY 2019-20 STANDARD PLANS	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX 425-052	SHEET 7 of 7
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GENERAL NOTES:

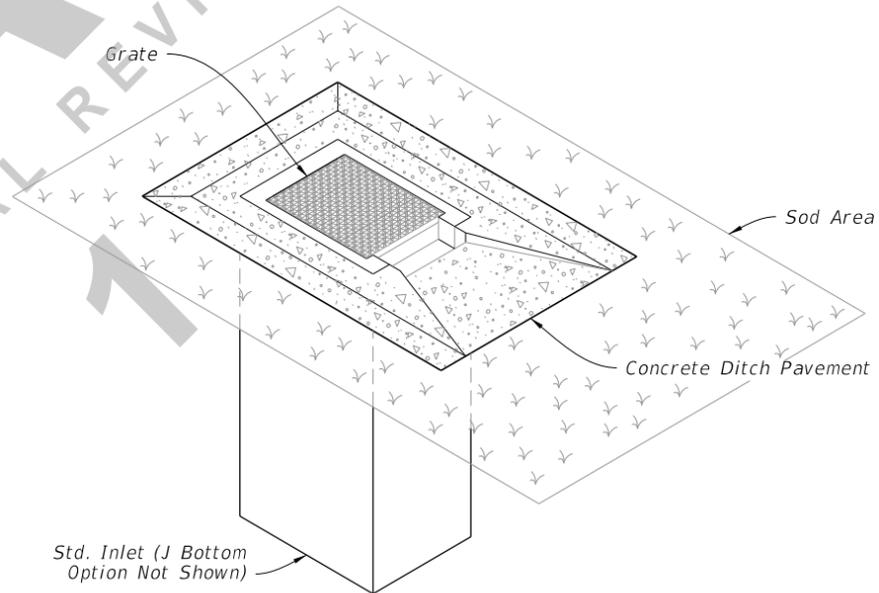
1. Work this Index with Index 425-001 and Index 425-010.
2. Chamfer all exposed edges and corners $\frac{3}{4}$ " chamfer or tooled to $\frac{1}{4}$ " radius.
3. All reinforcing is Grade 60 bars with 2" minimum cover unless otherwise noted. Cut or bend bars for $1\frac{1}{2}$ " clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.
4. Use concrete ditch pavement on inlets without slots and inlets with non-traversable slots only when called for in the Plans.
5. Quantities are for informational and estimating purposes only.



=====**DITCH BOTTOM INLET TYPE C**=====
TRAVERSABLE
 (Without Slot - Type D, E, and H Similar, Pipe Connection Not Shown)



=====**DITCH BOTTOM INLET TYPE C**=====
NON-TRAVERSABLE
 (Slot > 7" Shown - Type D, E, and H Similar, Pipe Connection Not Shown)



=====**DITCH BOTTOM INLET TYPE C**=====
TRAVERSABLE
 (Single Slot < 7" Shown, Double Slot, Type D, and E Similar, Pipe Connection Not Shown)

TABLE OF CONTENTS:

Sheet	Description
1	General Notes and Contents
2	Type C - Dimensional, Reinforcement, and Grate Details
3	Type D - Dimensional, Reinforcement, and Grate Details
4	Type E - Dimensional, Reinforcement, and Grate Details
5	Type H (2 & 3 Grate) - Dimensional, Reinforcement, and Steel Grate Details
6	Type H (4 Grate) - Dimensional, Reinforcement, and Steel Grate Details
7	Cast Iron Grate Details
8	Non-Traversable Inlet Details
9	Traversable Inlet Without Slot Details
10	Traversable Inlet With Slot Details
11	Case 1 - Add Traversable Slots to Existing Inlets
12	Case 2 - Add Traversable Slots (Partial) to Existing Inlets
13	Case 3 - Add Traversable Slots (Partial) to Existing Inlets and Ditch Block
14	Alternate A Structure Bottom - Top Slab Details

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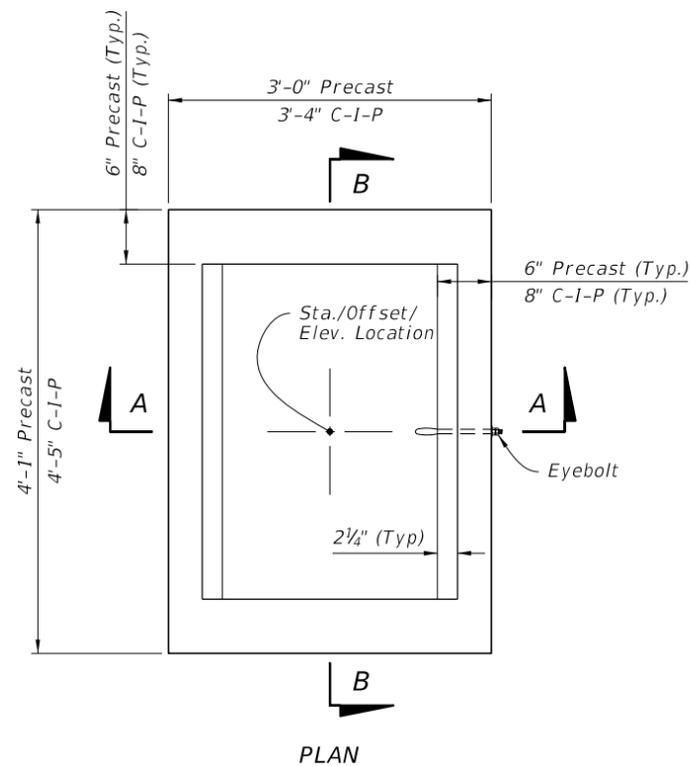
LAST REVISION 11/01/20	REVISION	DESCRIPTION:
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**FY 2021-22
STANDARD PLANS**

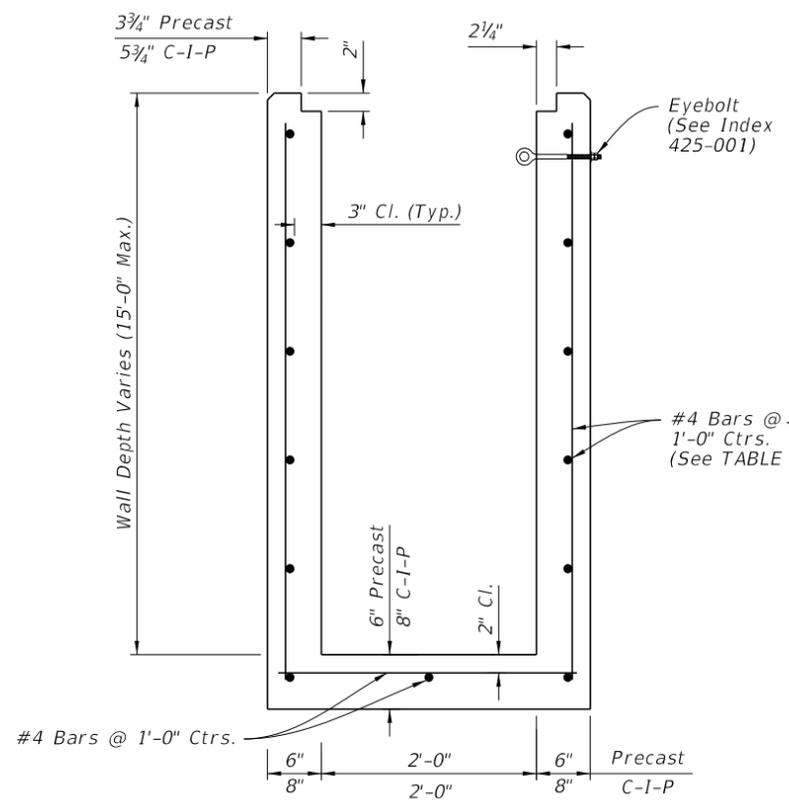
DITCH BOTTOM INLET TYPE C, D, E, AND H

INDEX
425-052

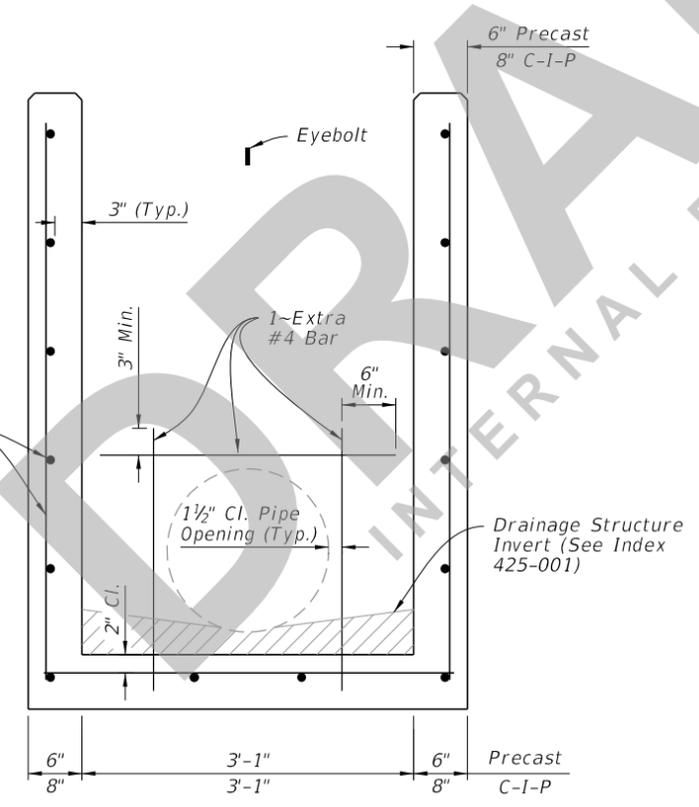
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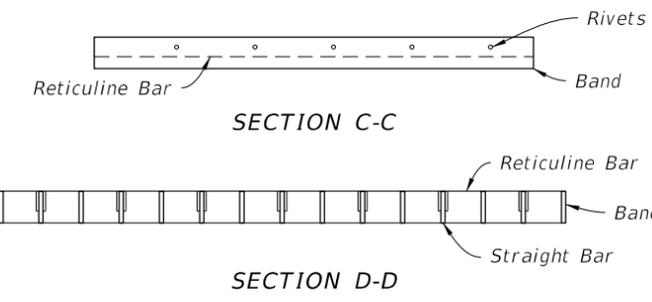
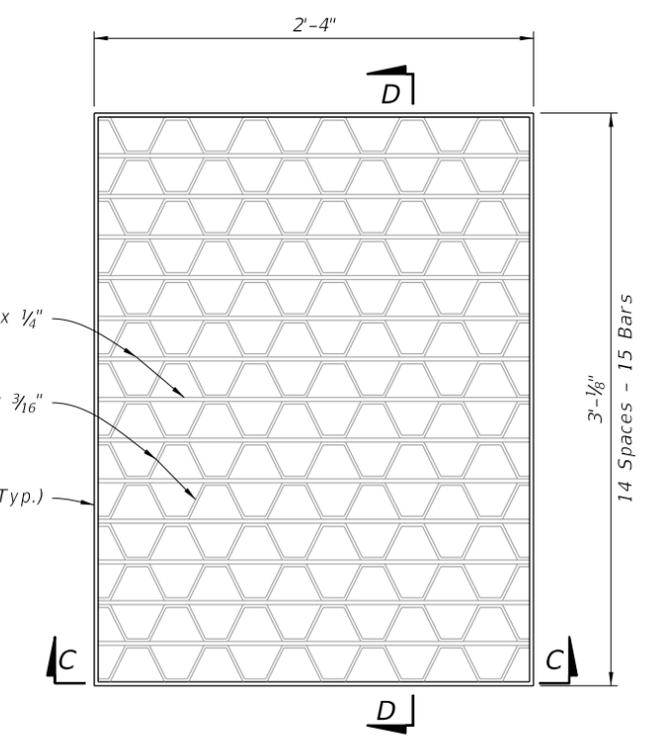
PLAN



SECTION A-A
(Pipe Opening Not Shown)



SECTION B-B
(Pipe Opening Shown)



STEEL GRATE DETAIL
(Approx. 104 Lbs. - See Sheet 7 For Cast Iron Grates)

TABLE 1
HORIZONTAL WALL REINFORCING SCHEDULE

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BAR	WWF
0' - 15'	A12	0.20	12"	8"

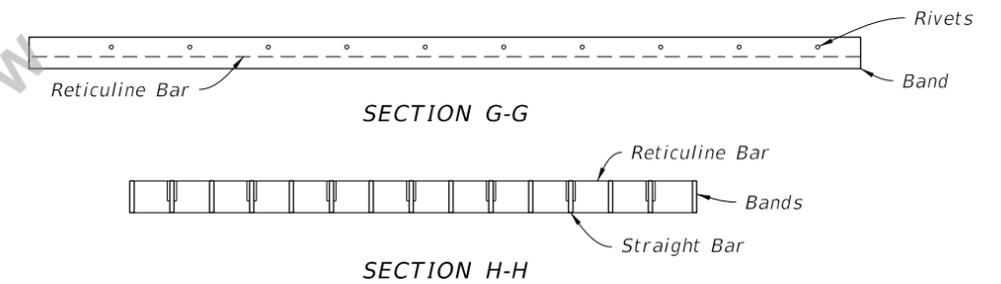
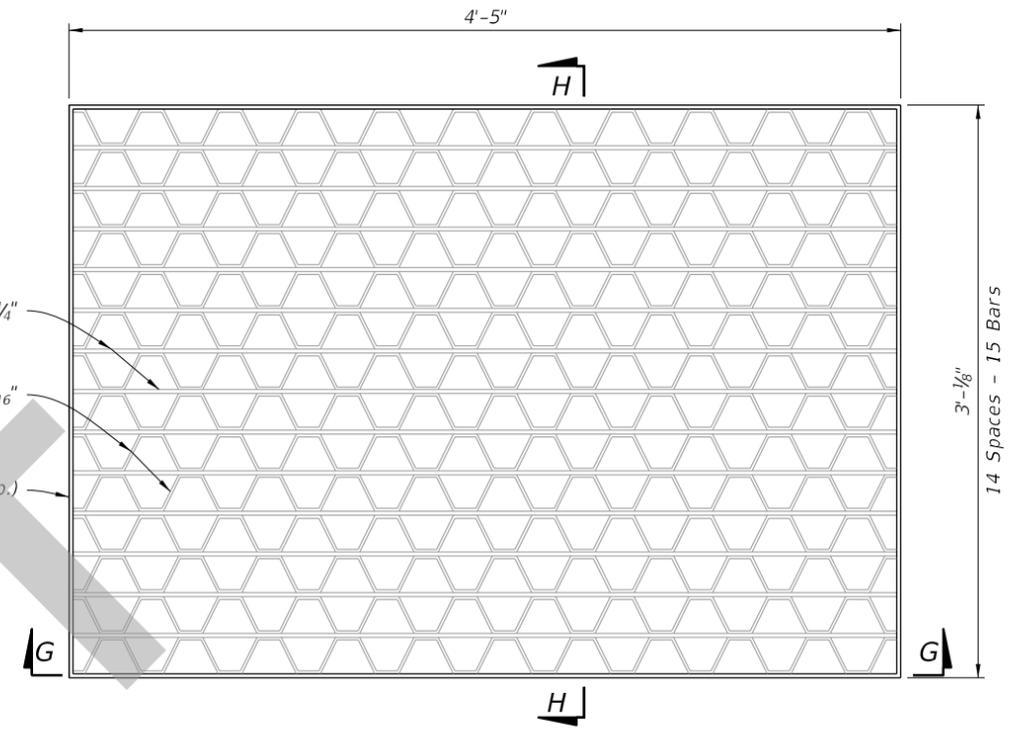
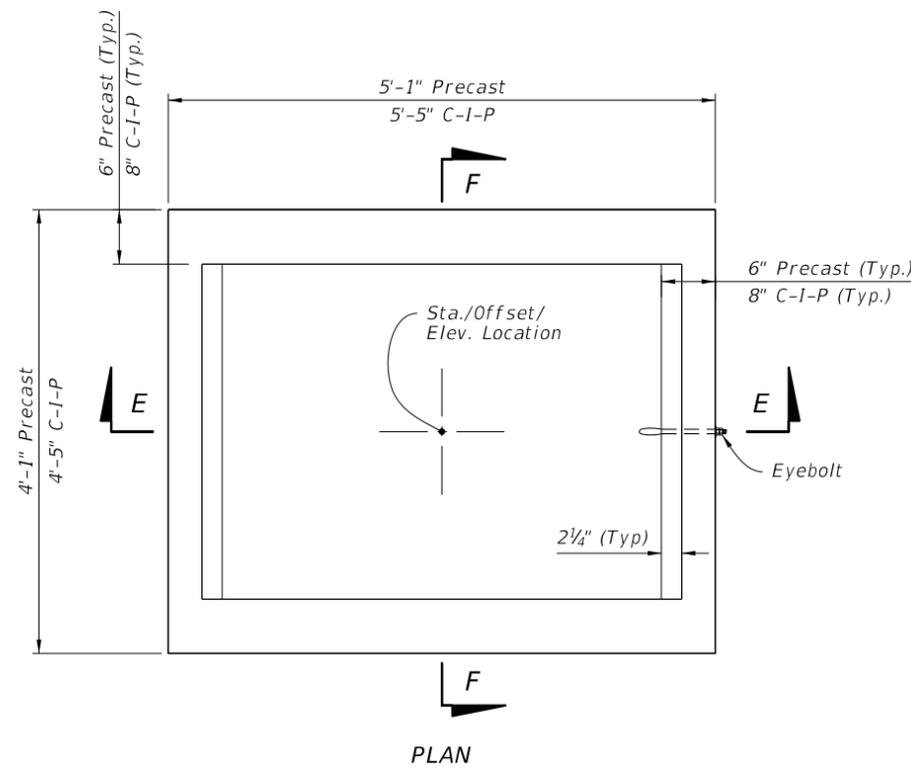
- NOTES:**
1. Grate, Concrete Ditch Pavement, and Sod not shown on structure detail.
 2. See Sheet 8, 9, and 10 for Concrete Ditch Pavement and Sodded Area details.

DIMENSIONAL AND REINFORCEMENT DETAILS

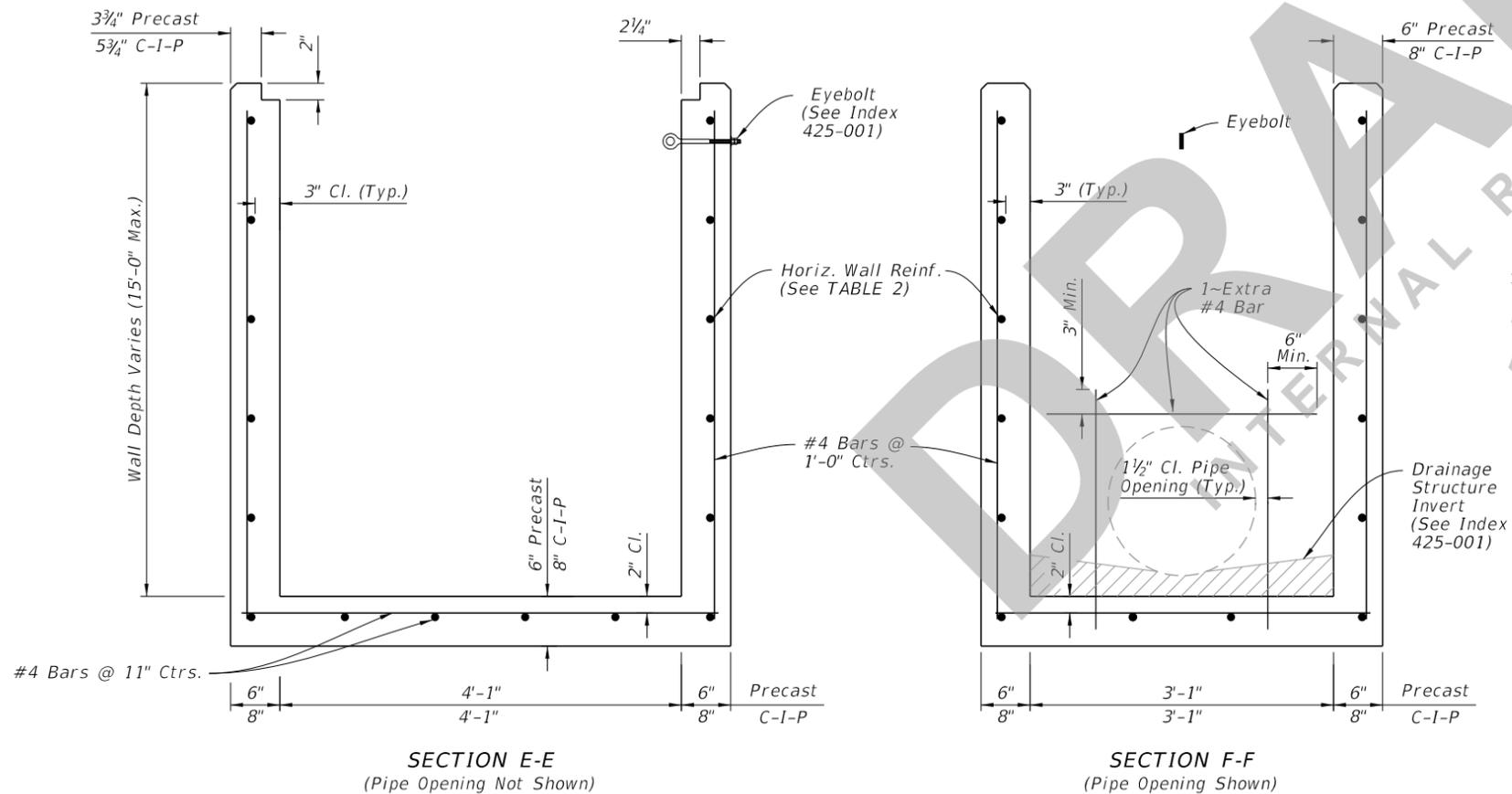
TYPE C - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS

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LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX	SHEET
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STEEL GRATE DETAIL
(Approx. 190 lbs. - See Sheet 7 For Cast Iron Grates)



DIMENSIONAL AND REINFORCEMENT DETAILS

TABLE 2
HORIZONTAL WALL REINFORCING SCHEDULE

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWR
0' - 6'	A12	0.20	12"	8"
6' - 10'	A6	0.20	6"	5"
10' - 13'	A4	0.20	4"	3"
10' - 15'	B5.5	0.24	5 1/2"	5"

NOTES:

1. Grate, Concrete Ditch Pavement, and Sod not shown on structure details.
2. See Sheet 8, 9, and 10 for Concrete Ditch Pavement and Sodded Area details.
3. Cast Iron Grate is not permitted on inlet Type D.

TYPE D - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS

DITCH BOTTOM INLET TYPE C, D, E, AND H

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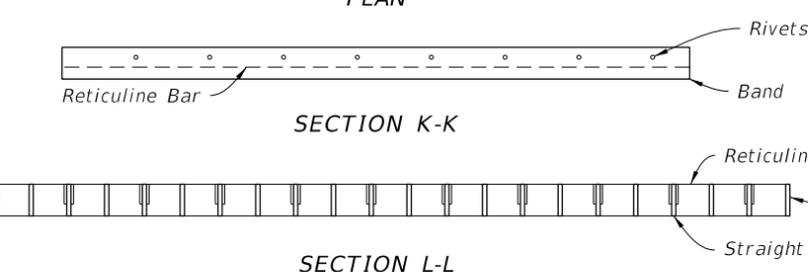
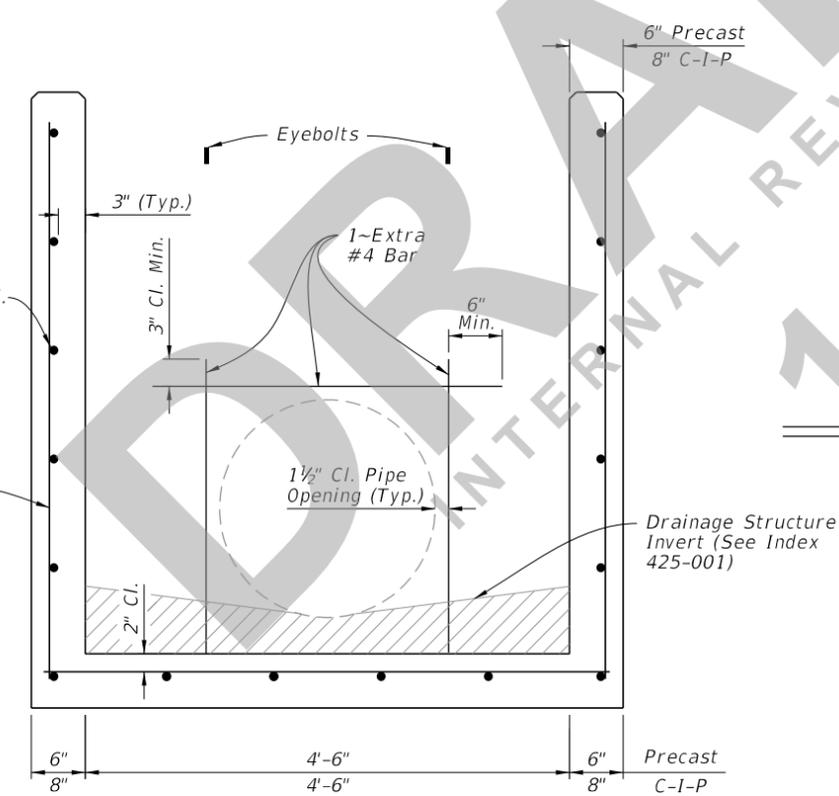
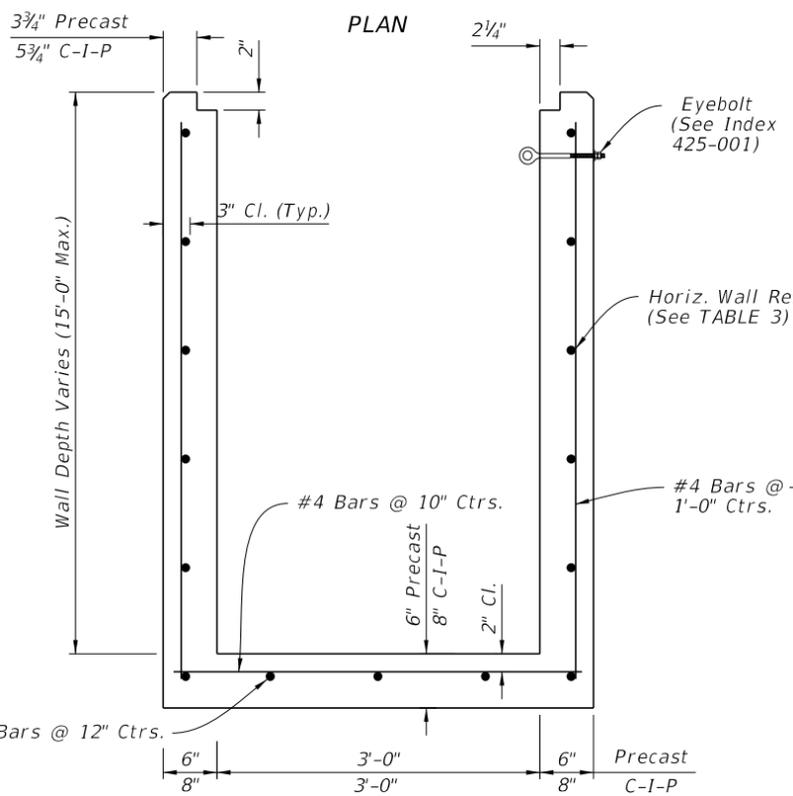
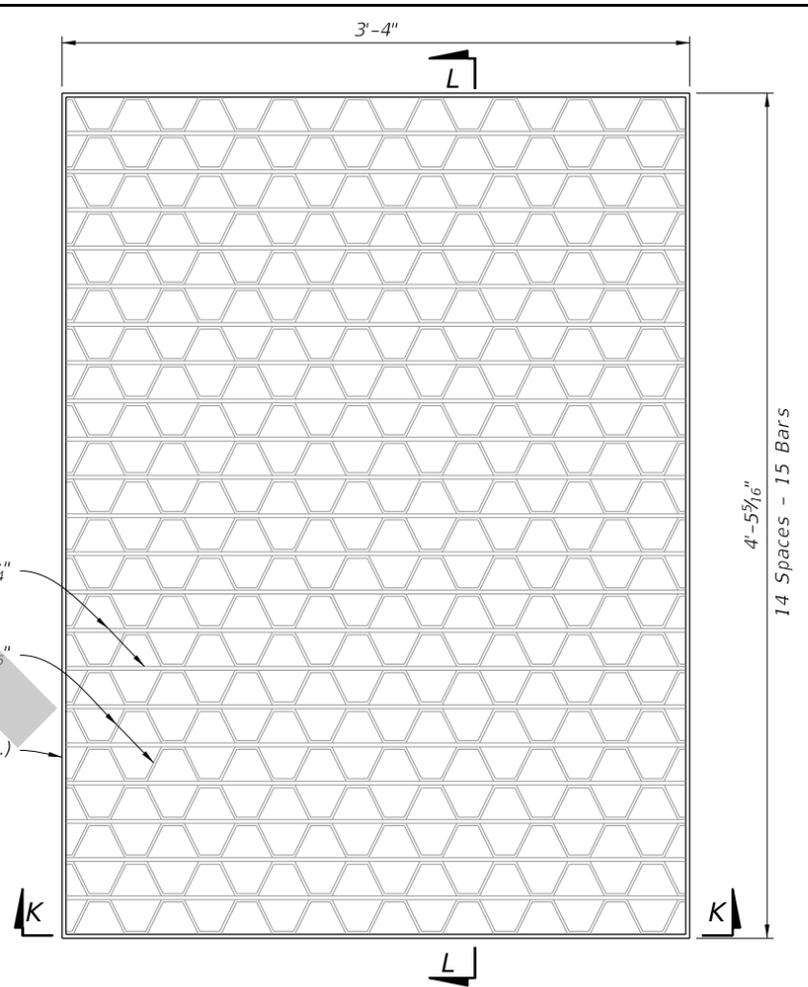
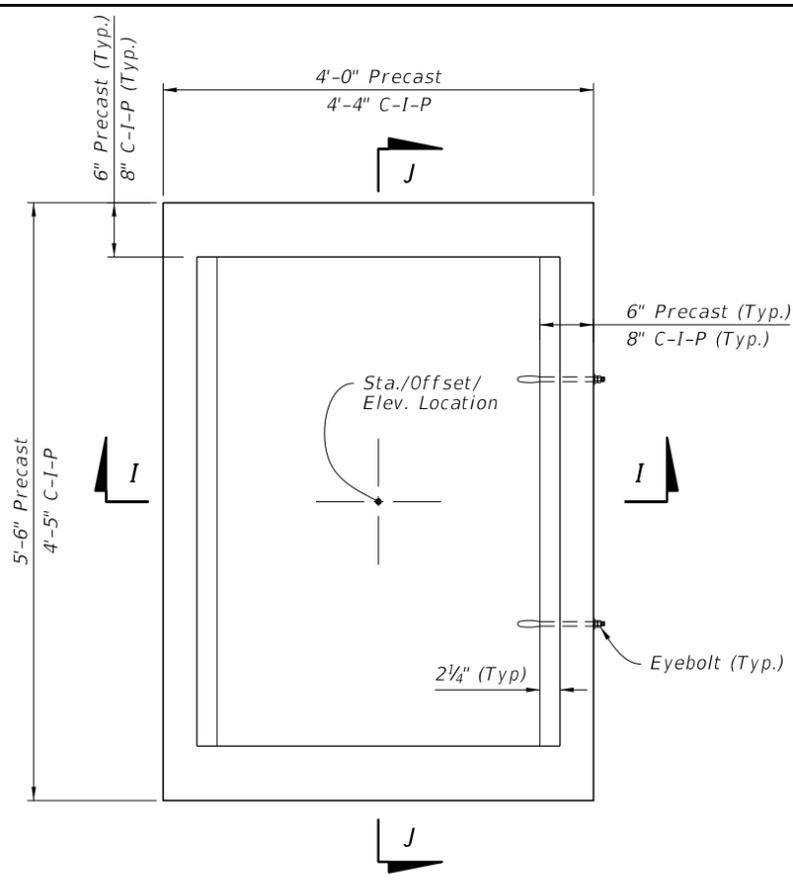
LAST REVISION 11/01/20	DESCRIPTION:
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STEEL GRATE DETAIL
(Approx. 215 lbs. - See Sheet 7 For Cast Iron Grates)

**TABLE 3
HORIZONTAL WALL REINFORCING SCHEDULE**

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWR
0' - 5'	A12	0.20	12"	8"
0' - 7.5'	A6	0.20	6"	5"
7.5' - 10'	B5.5	0.24	5 1/2"	5"
10' - 15'	C6.5	0.37	6 1/2"	6"

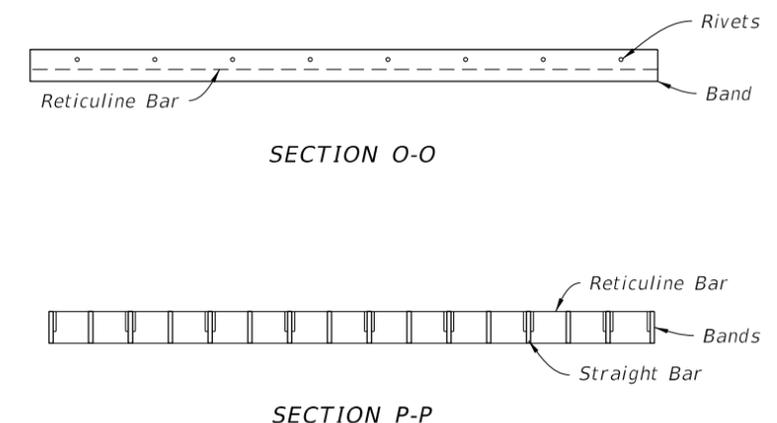
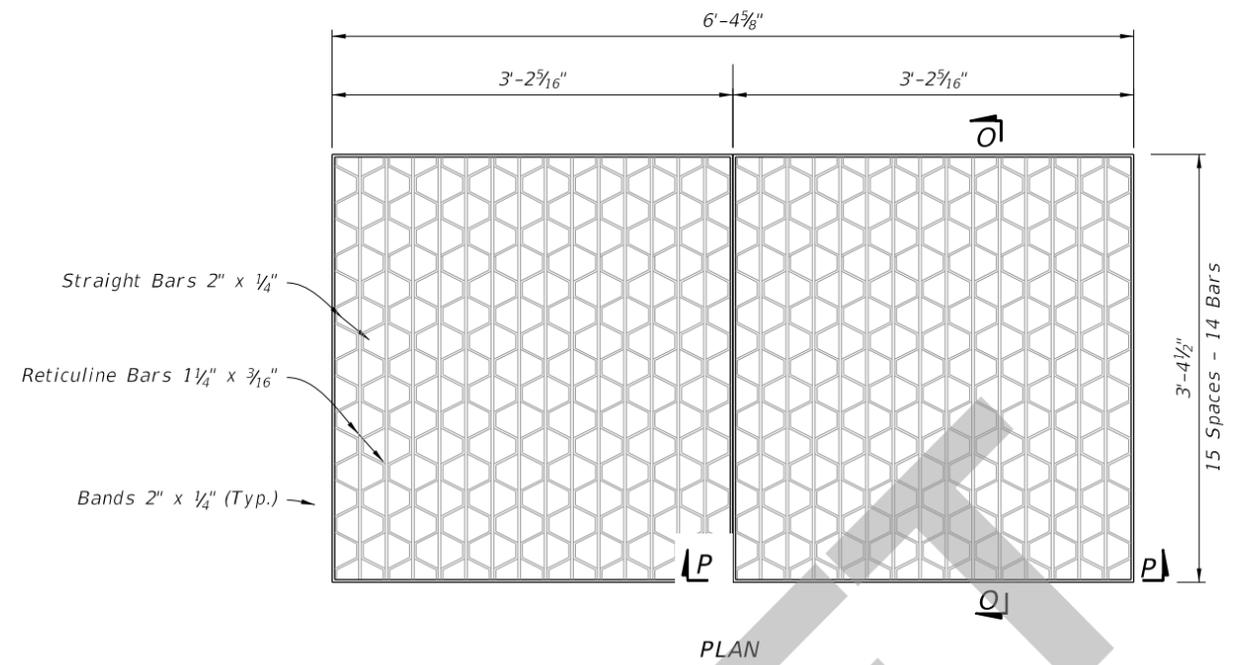
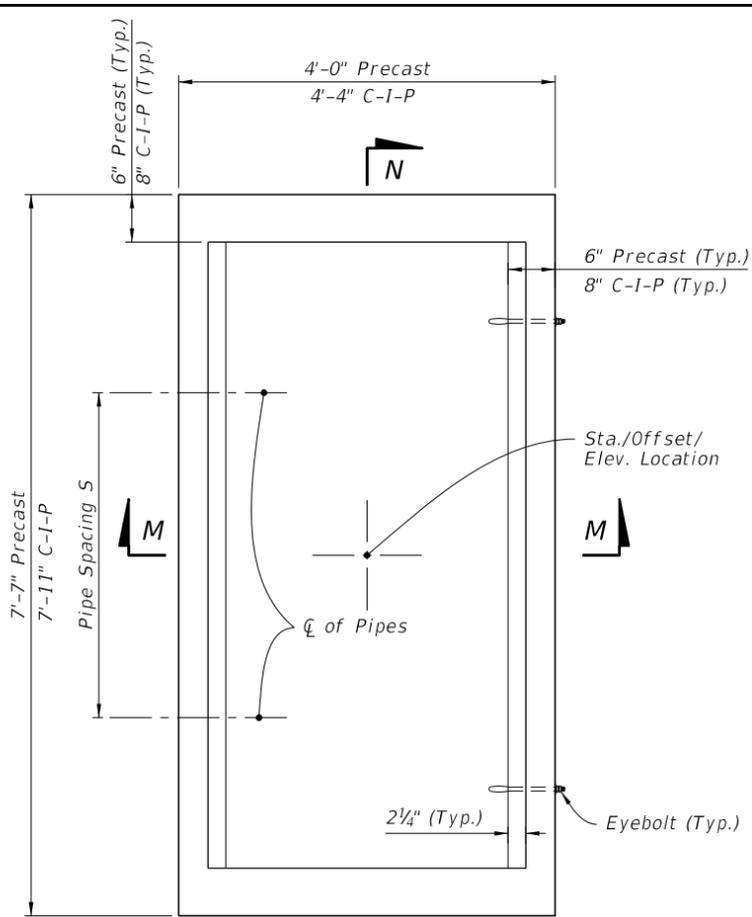
- NOTES:**
1. Grate, Concrete Ditch Pavement, and Sod not shown on structure detail.
 2. See Sheet 8, 9, and 10 for Concrete Ditch Pavement and Sodded Area details.

DIMENSIONAL AND REINFORCEMENT DETAILS

TYPE E - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS

8/7/2020 7:05:14 AM

LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX	SHEET
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STEEL GRATE DETAIL
(2-Grates Shown, Approx. 310 lbs. - See Sheet 7 For Cast Iron, 3-Grates)

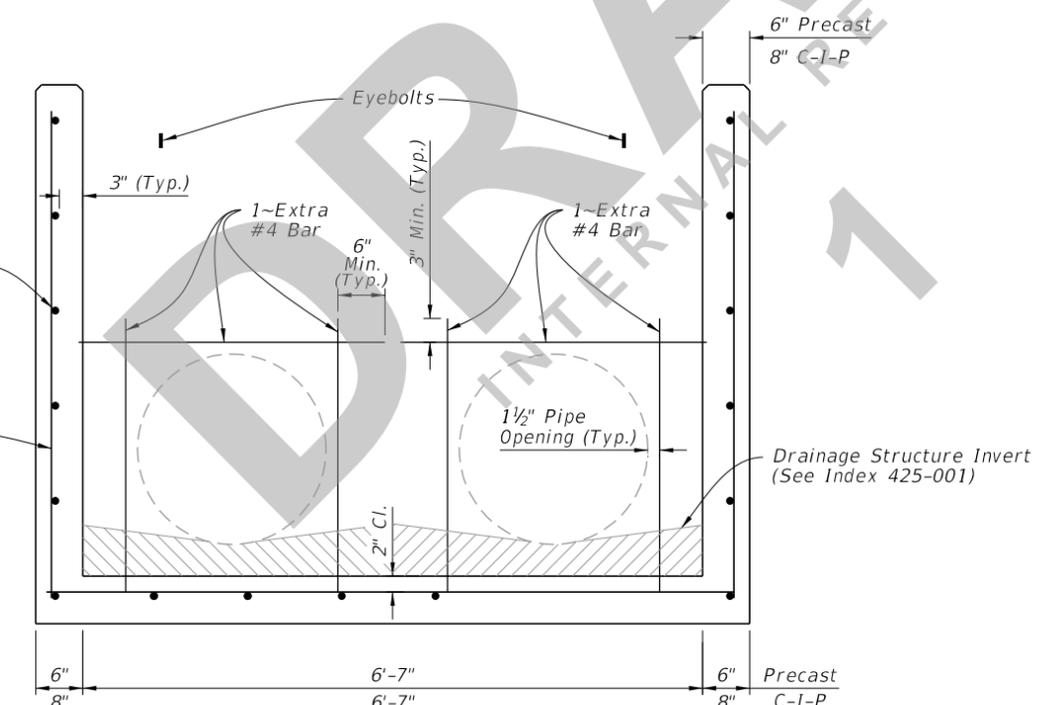
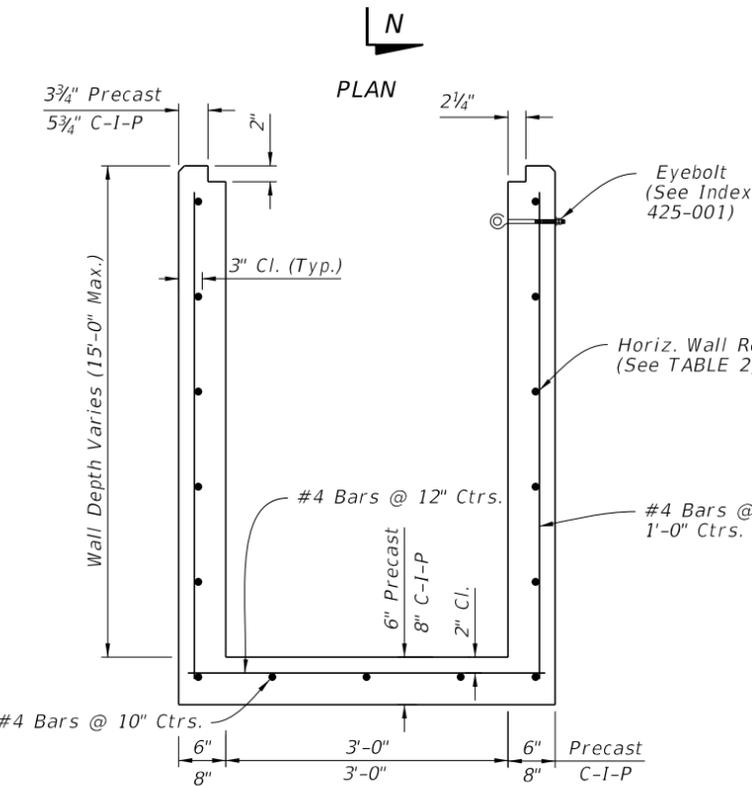


TABLE 4
HORIZONTAL WALL REINFORCING SCHEDULE

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWR
0' - 5'	B5.5	0.24	5 1/2"	5"
5'-7'	C6.5	0.37	6 1/2"	6"
7' - 15'	D4.5	0.53	4 1/2"	4"

- NOTES:**
1. Grate, Concrete Ditch Pavement, and Sod not shown on structure details.
 2. See Sheet 8, 9, and 10 for Concrete Ditch Pavement and Sodded Area details.
 3. Pipe Spacing S = 3'-5"

SECTION M-M
(Pipe Opening Not Shown)

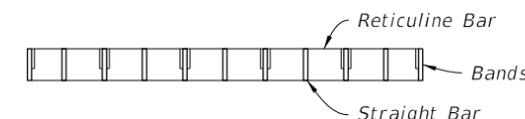
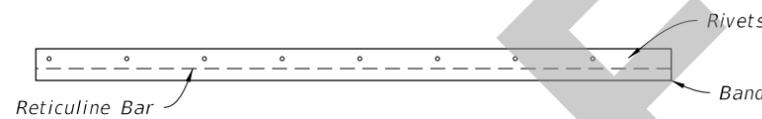
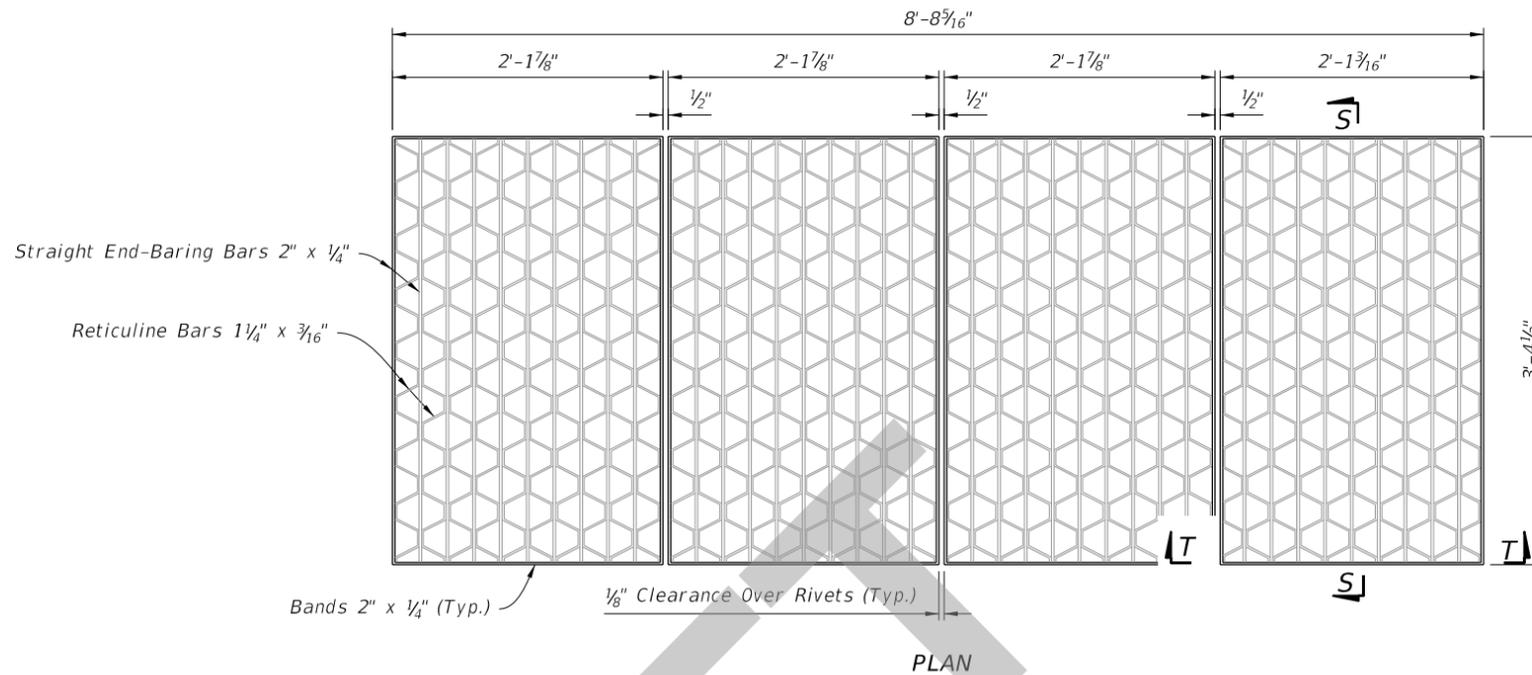
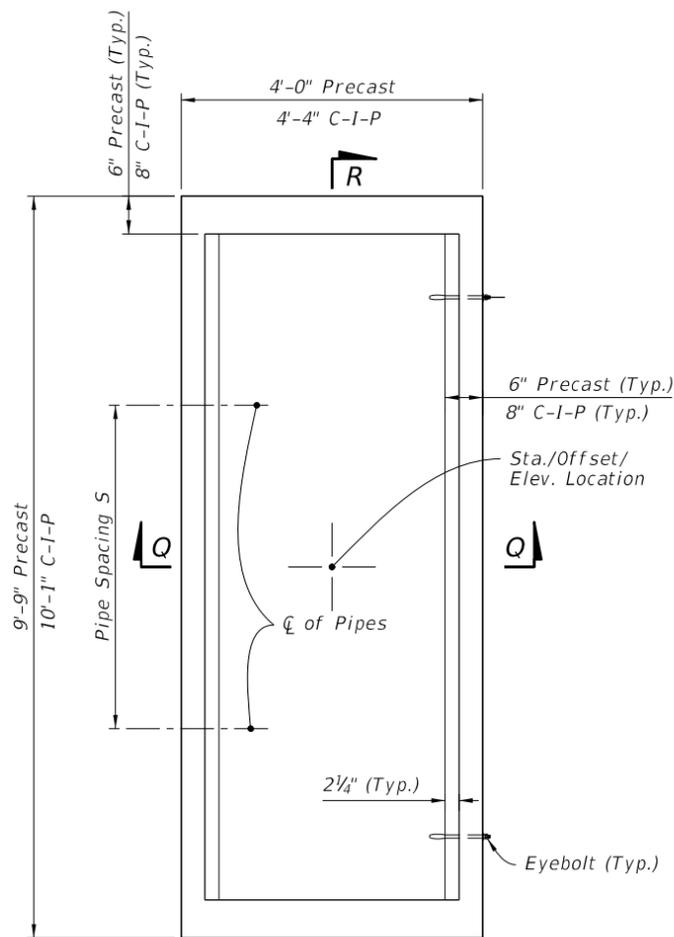
SECTION N-N
(Pipe Opening Shown)

DIMENSIONAL AND REINFORCEMENT DETAILS

TYPE H (2 & 3 GRATE) - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS

8/7/2020 7:05:17 AM

LAST REVISION 11/01/20	DESCRIPTION:		FY 2021-22 STANDARD PLANS	DITCH BOTTOM INLET TYPE C, D, E, AND H	INDEX	SHEET
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STEEL GRATE DETAIL

(Approx. 388 lbs. - See Sheet 7 For Cast Iron Grates)

PLAN

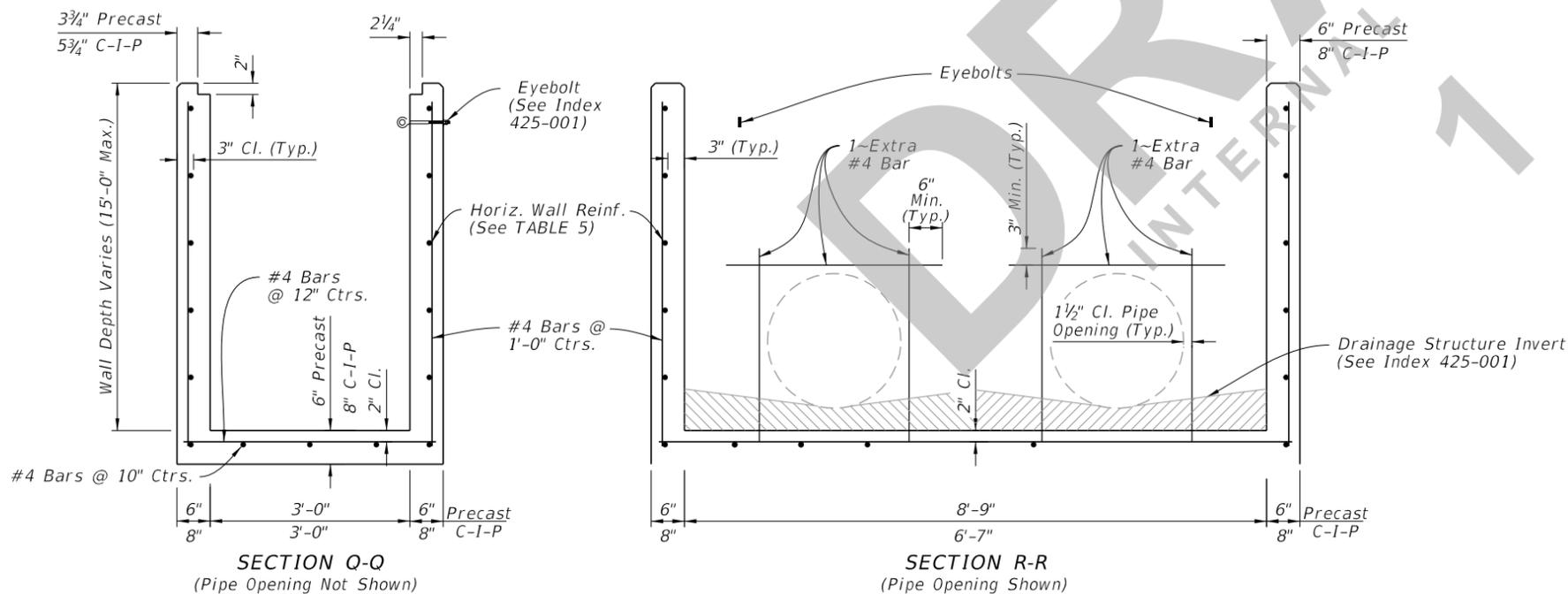


TABLE 5
HORIZONTAL WALL REINFORCING SCHEDULE

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING	
			BARS	WWR
0' - 5'	C3.5	0.37	3 1/2"	3"
5'-10'	D4.5	0.53	4 1/2"	4"

NOTES:

1. Grate, Concrete Ditch Pavement, and Sod not shown on structure details.
2. See Sheet 8, 9, and 10 for Concrete Ditch Pavement and Sodded Area details.
3. Pipe Spacing S = 4'-3"

DIMENSIONAL AND REINFORCEMENT DETAILS

TYPE H (4 GRATE) - DIMENSIONAL, REINFORCEMENT, AND STEEL GRATE DETAILS

8/7/2020 7:05:20 AM

LAST REVISION	DESCRIPTION:
11/01/20	



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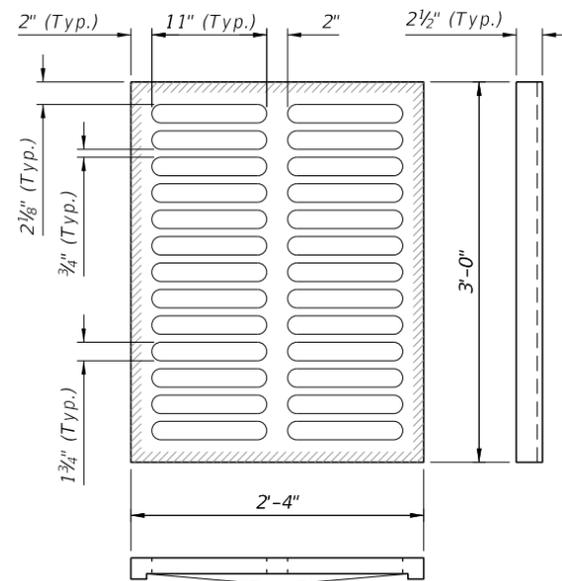
DITCH BOTTOM INLET TYPE C, D, E, AND H

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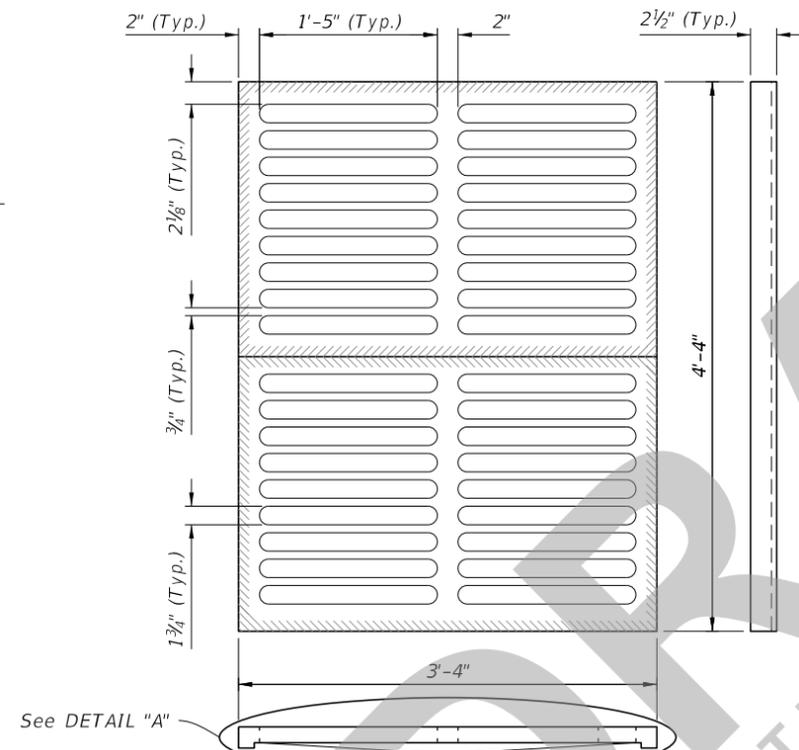
SHEET
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NOTES:

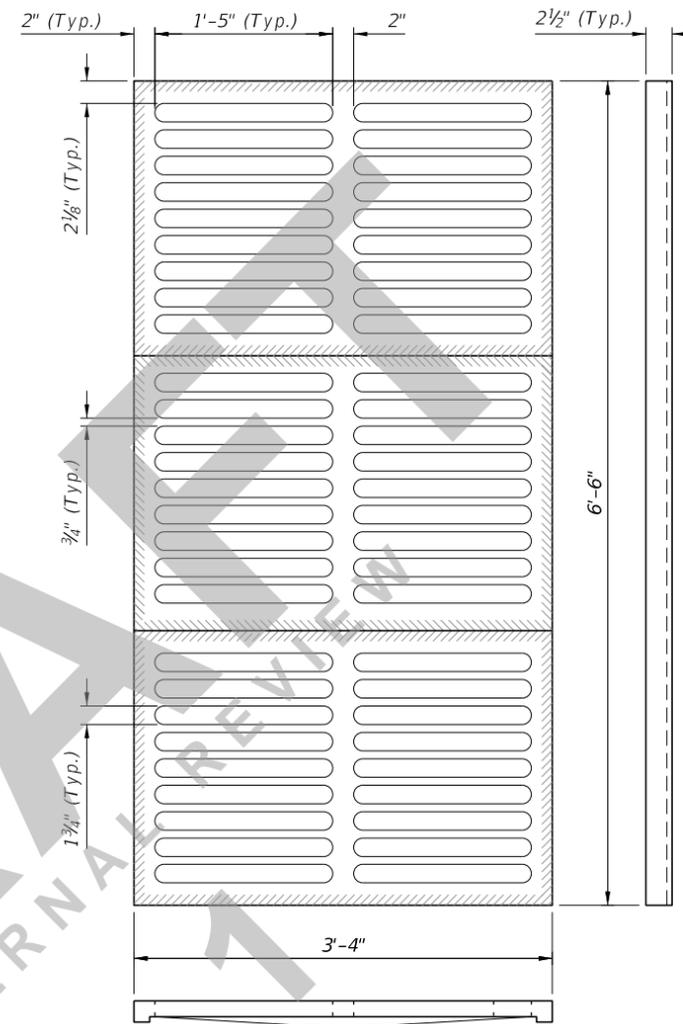
1. Steel Grates are required on inlets with traversable slots and on Inlets where bicycle traffic is anticipated.
2. Cast Iron Grates are not permitted on Inlet Type D.



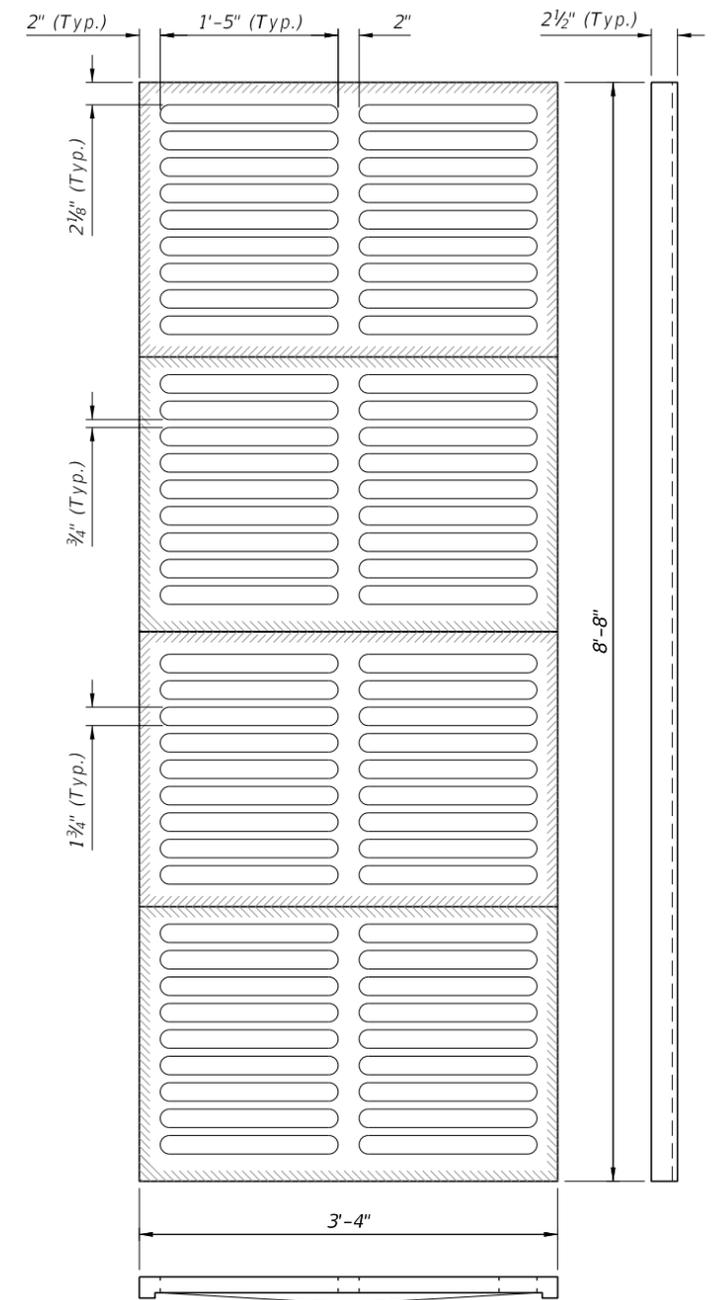
TYPE C
Approx. 235 lbs.



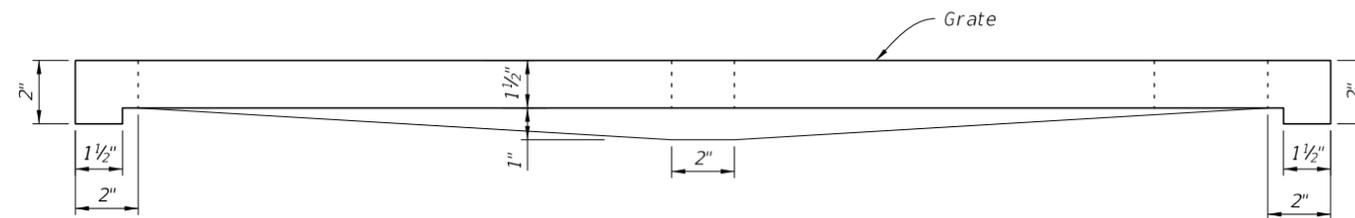
TYPE E
Approx. 465 lbs.



TYPE H
(3-Grate Inlet)
Approx. 725 lbs.



TYPE H
(4-Grate Inlet)
Approx. 967 lbs.



DETAIL "A"
(Typical Section)

CAST IRON GRATE DETAILS

8/7/2020 7:05:24 AM

LAST REVISION	11/01/120	DESCRIPTION:
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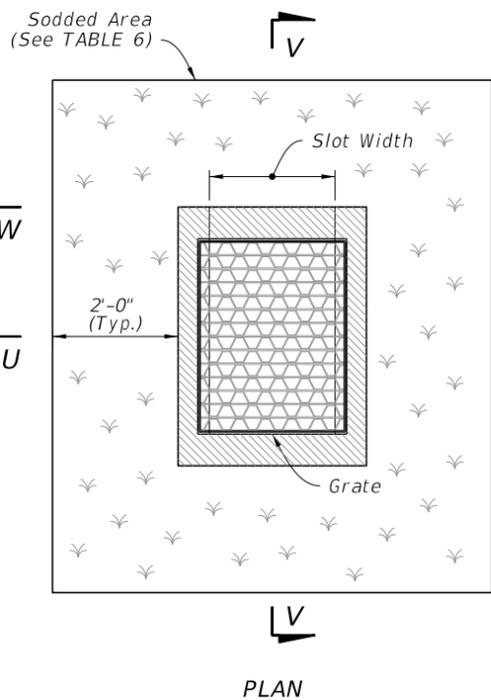


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STANDARD PLANS

DITCH BOTTOM INLET TYPE C, D, E, AND H

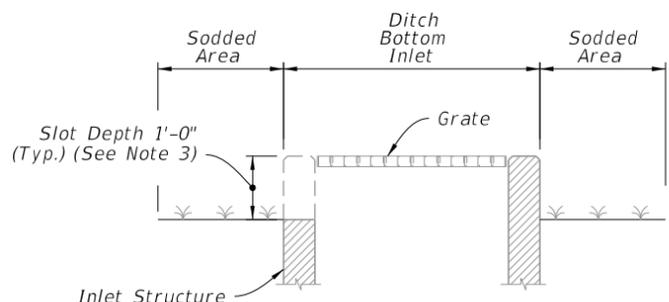
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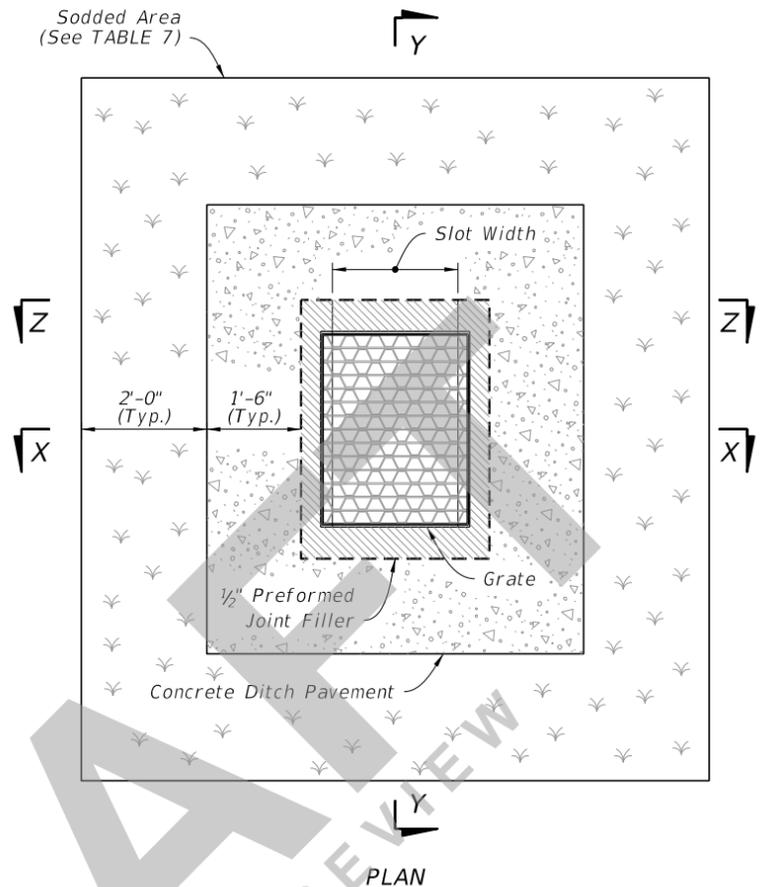


**TABLE 6
SOD ONLY
QUANTITIES**

Inlet Type	Sod SY
C	6
D	6
E	7
H	8

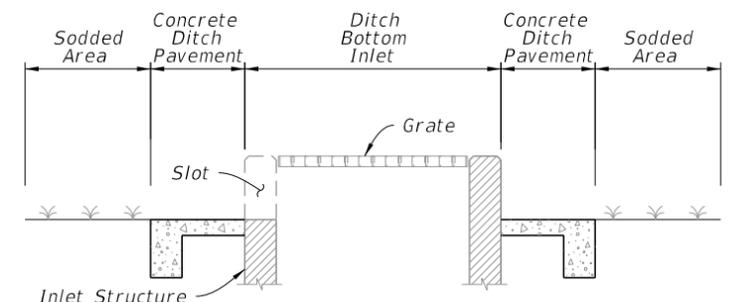


SECTION V-V

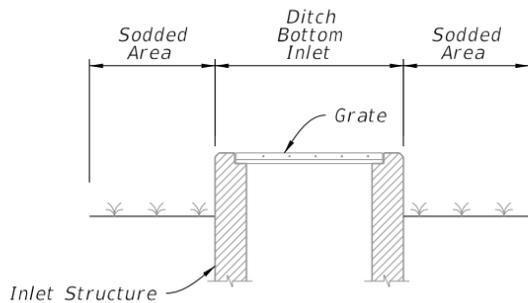


**TABLE 7
SOD AND PAVEMENT
QUANTITIES**

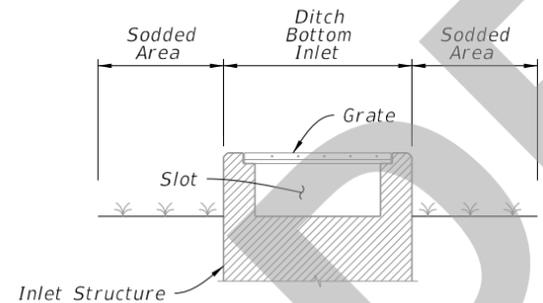
Inlet Type	Sod SY	Pavt. CY
C	8	0.30
D	9	0.36
E	9	0.37
H	11	0.45



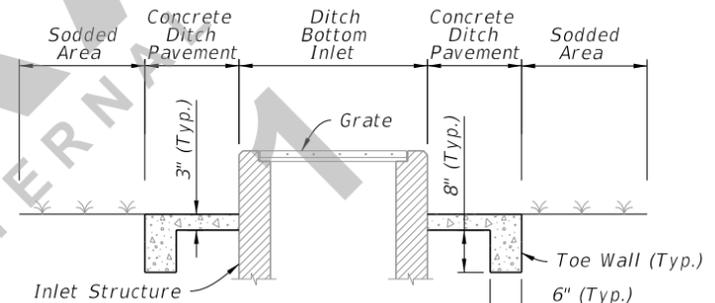
SECTION Y-Y



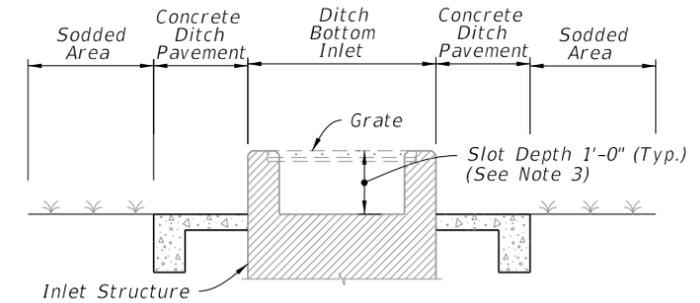
SECTION U-U



SECTION W-W



SECTION X-X



SECTION Z-Z

SODDING ONLY
(Slot Shown, Non-Slot Similar)

SODDING AND PAVEMENT
(Slot Shown, Non-Slot Similar)

- NOTES:**
1. Concrete Ditch pavement to be installed only where called for in the Plans.
 2. Sod always required.
 3. Slots are not permitted on sides with grate seats.

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Sodded Area (See TABLE 8)

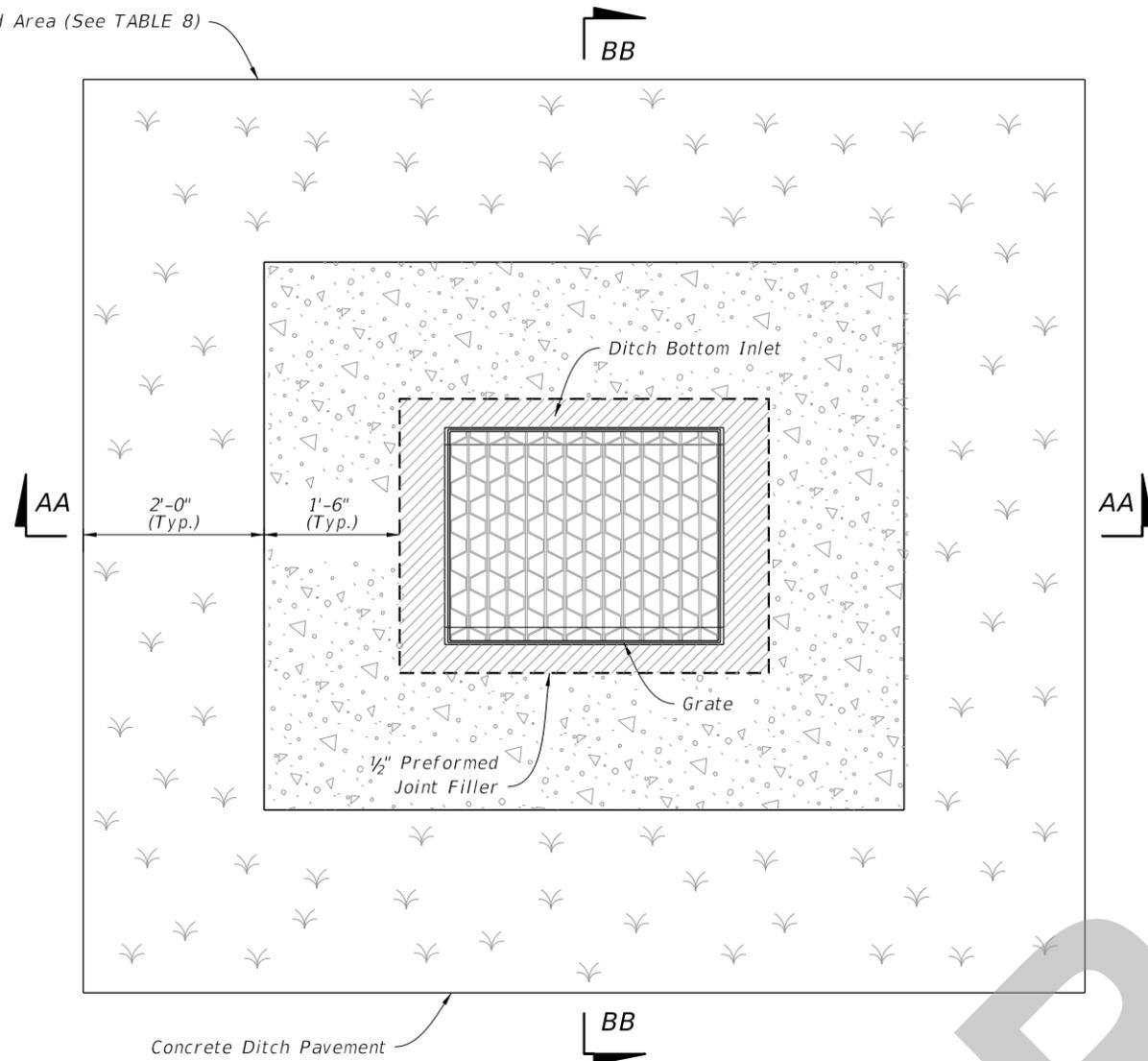
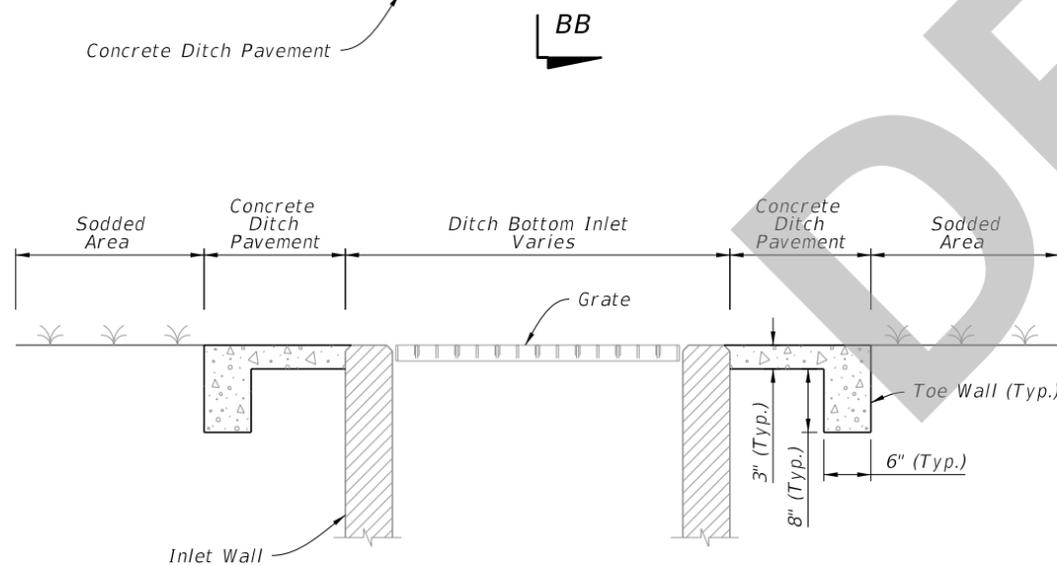


TABLE 8
CONCRETE DITCH PAVEMENT
AND SOD QUANTITIES

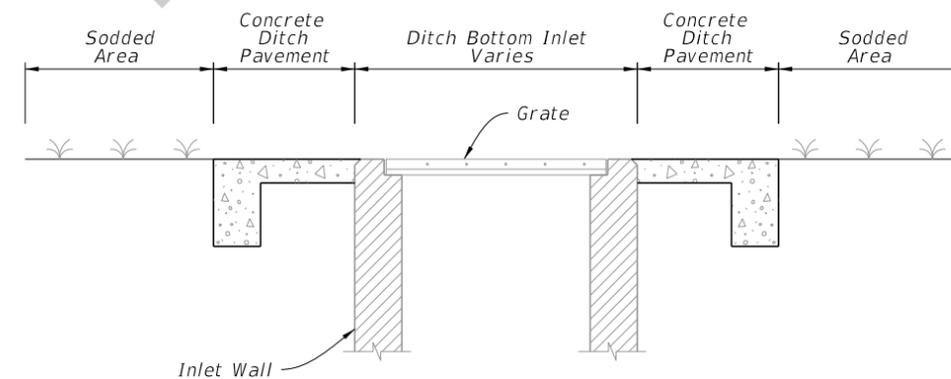
SOD AND PAVEMENT		
Inlet Type	Sod SY	Pavt. CY
C	8	0.30
D	9	0.36
E	9	0.37
H	11	0.45

NOTES:

1. Concrete Ditch pavement to be installed only where called for in the Plans.
2. Sod always required.



SECTION AA-AA



SECTION BB-BB

TRAVERSABLE INLET WITHOUT SLOT DETAILS

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LAST REVISION 11/01/20	DESCRIPTION:
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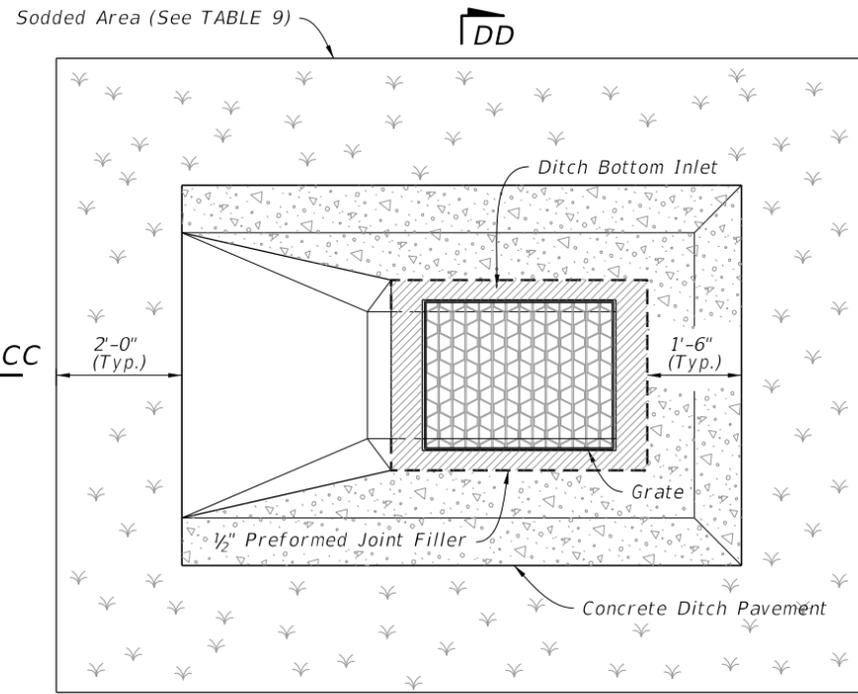


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STANDARD PLANS

DITCH BOTTOM INLET TYPE C, D, E, AND H

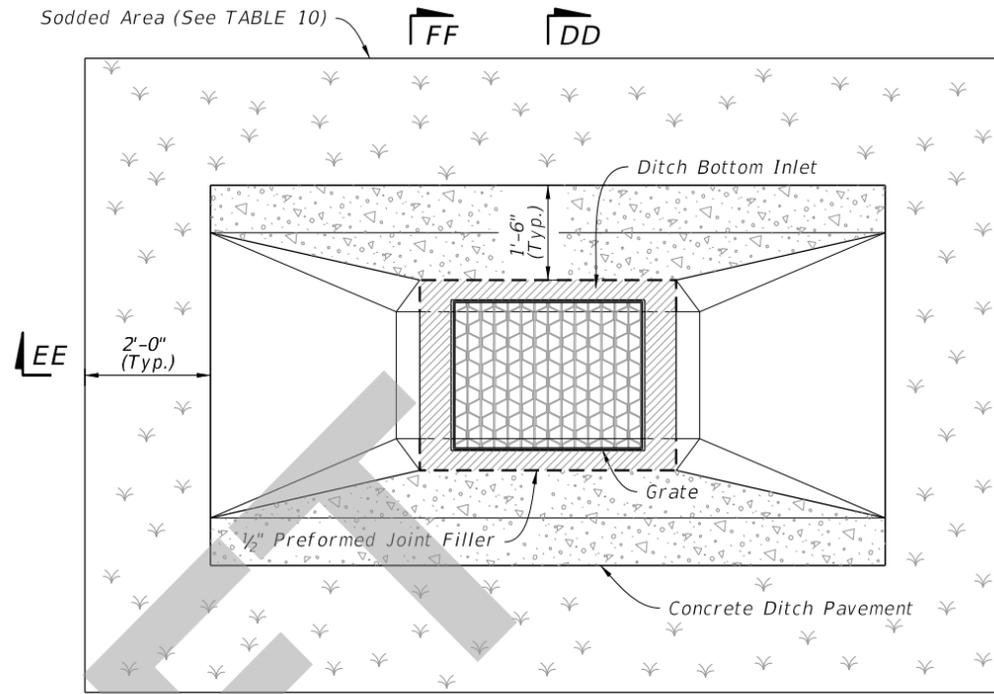
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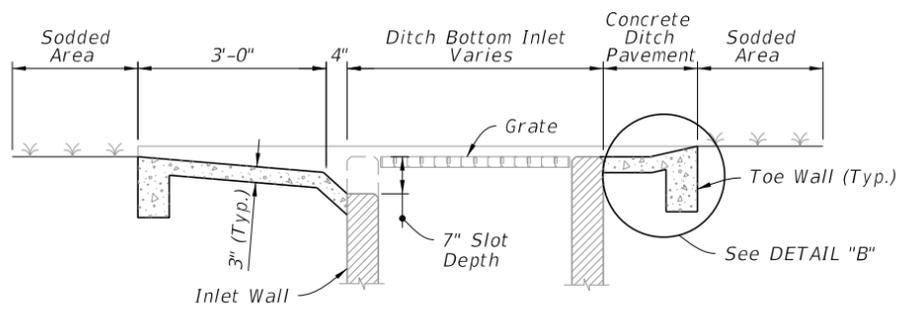
**TABLE 9
CONCRETE DITCH
PAVEMENT AND
SOD QUANTITIES**

SINGLE SLOT		
Inlet Type	Sod SY	Pavt. CY
C	12	0.77
D	14	0.91
E	14	0.91
H	--	--

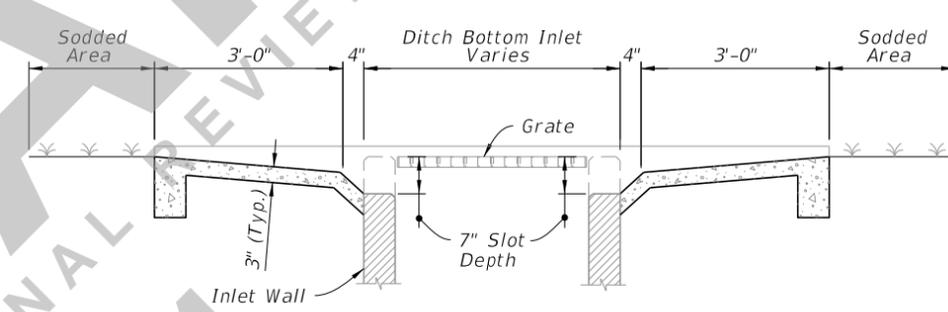


**TABLE 10
CONCRETE DITCH
PAVEMENT AND
SOD QUANTITIES**

SINGLE SLOT		
Inlet Type	Sod SY	Pavt. CY
C	16	0.93
D	19	1.10
E	18	1.08
H	--	--



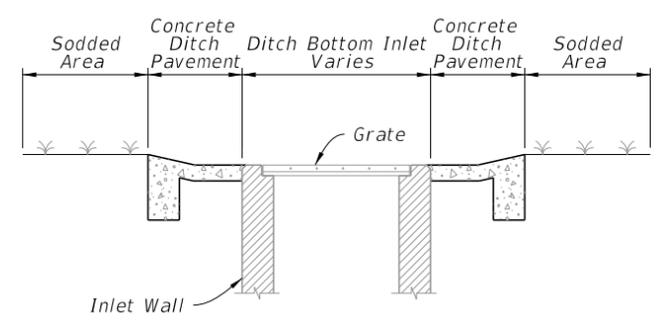
SECTION CC-CC



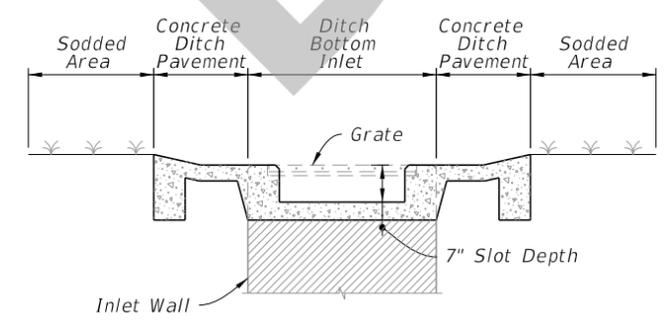
SECTION EE-EE

SINGLE SLOT

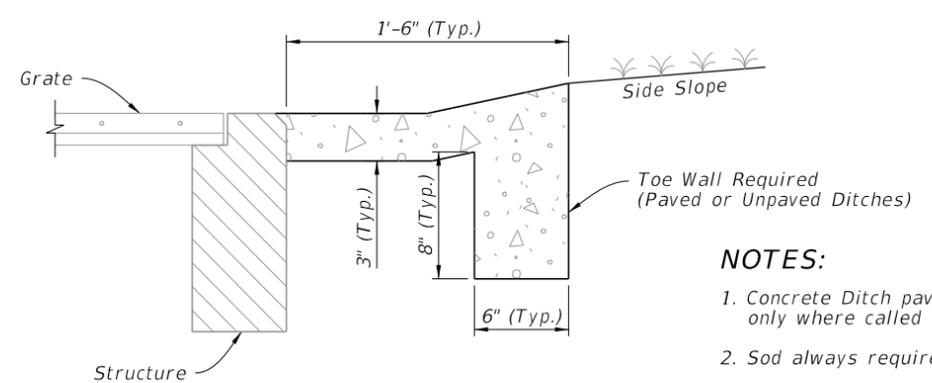
DOUBLE SLOT



SECTION DD-DD



SECTION FF-FF

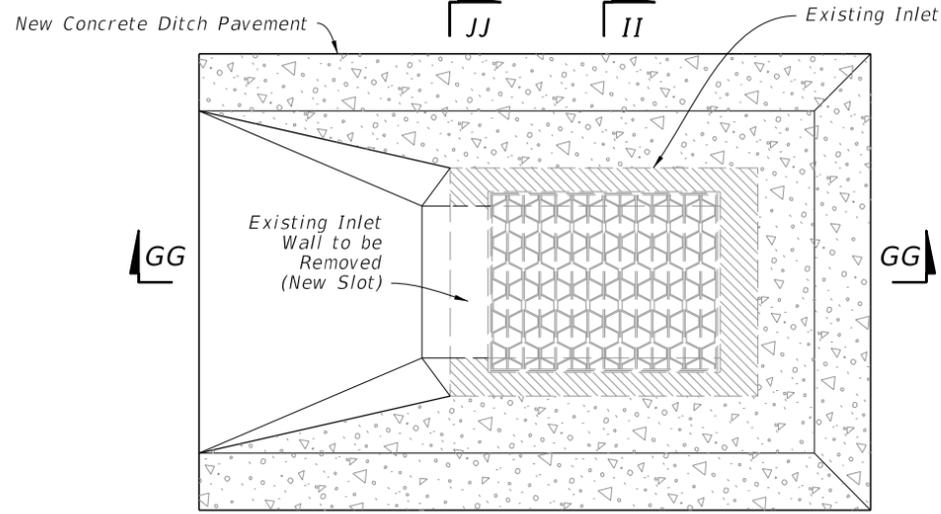


DETAIL "B"

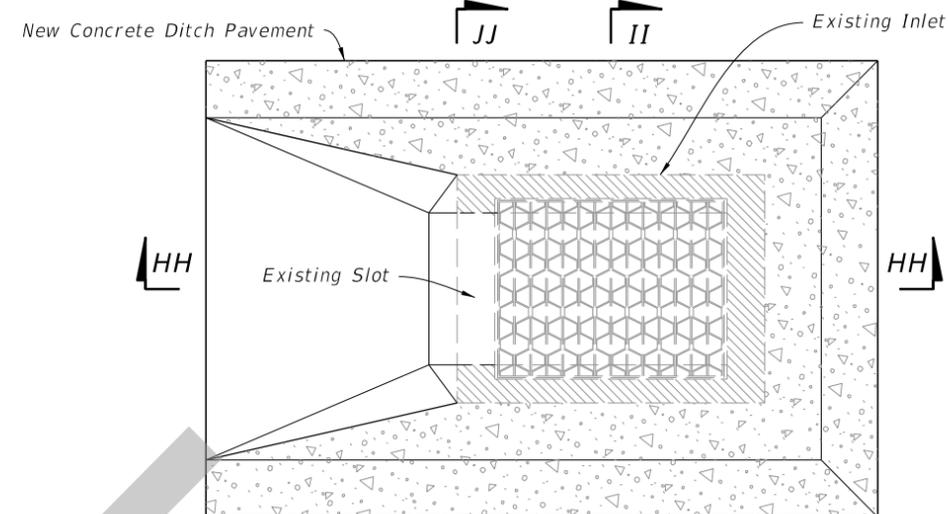
- NOTES:**
1. Concrete Ditch pavement to be installed only where called for in the Plans.
 2. Sod always required.

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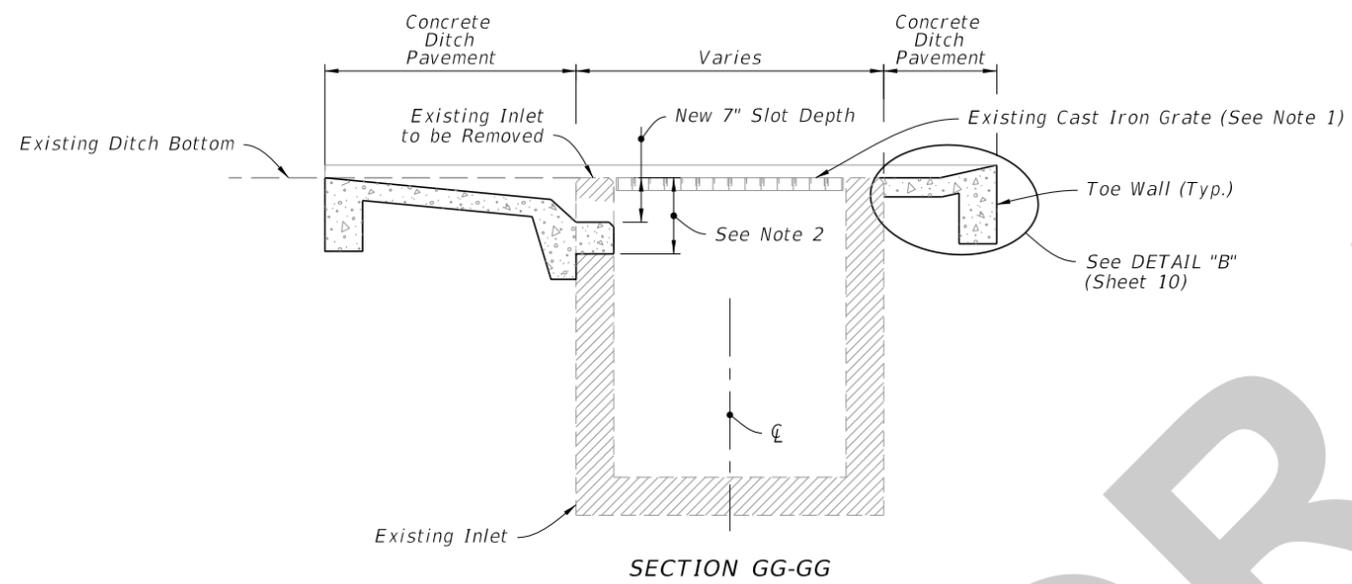
TRAVERSABLE INLET WITH SLOT DETAILS



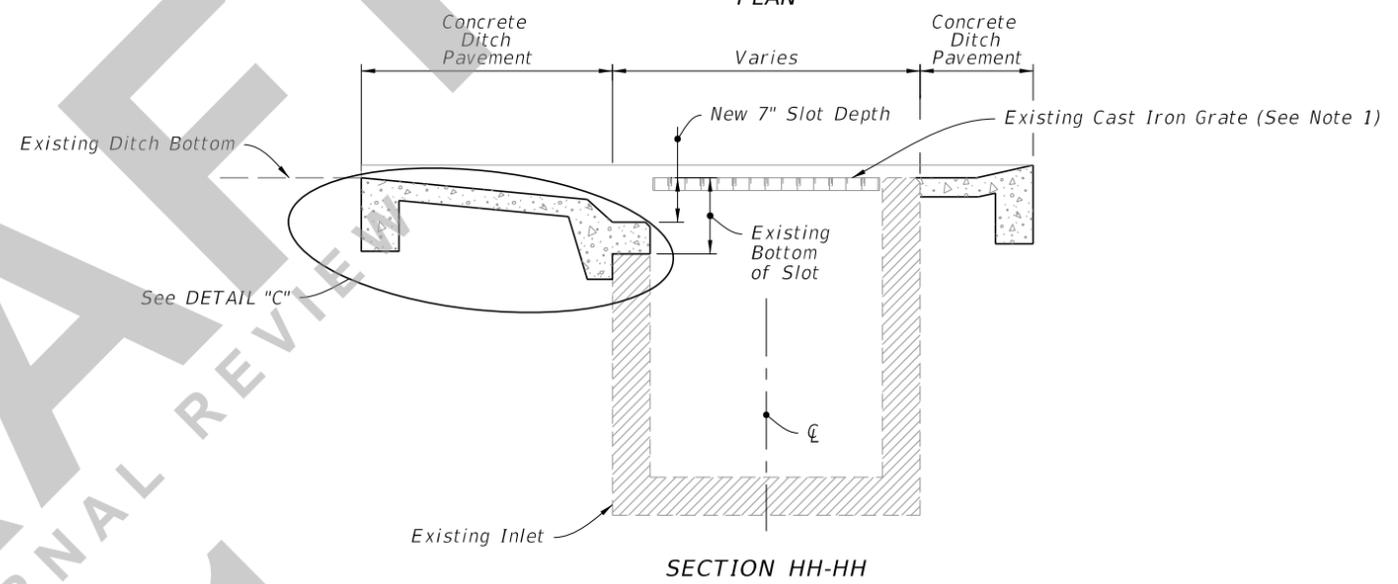
PLAN



PLAN



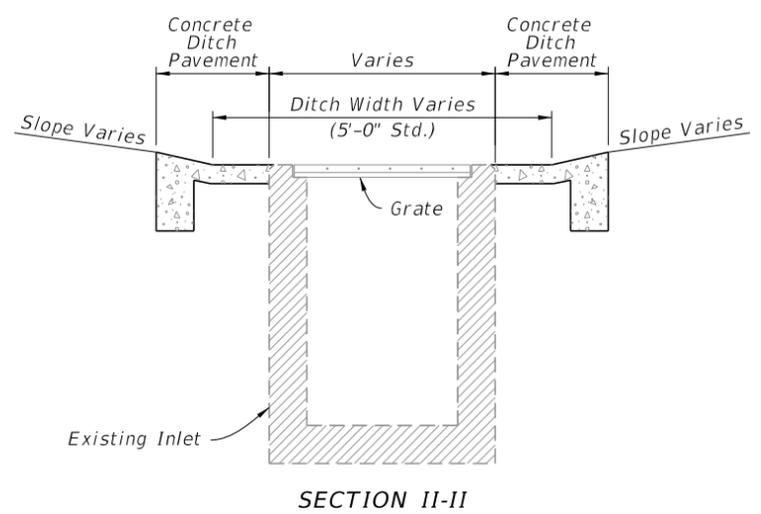
SECTION GG-GG



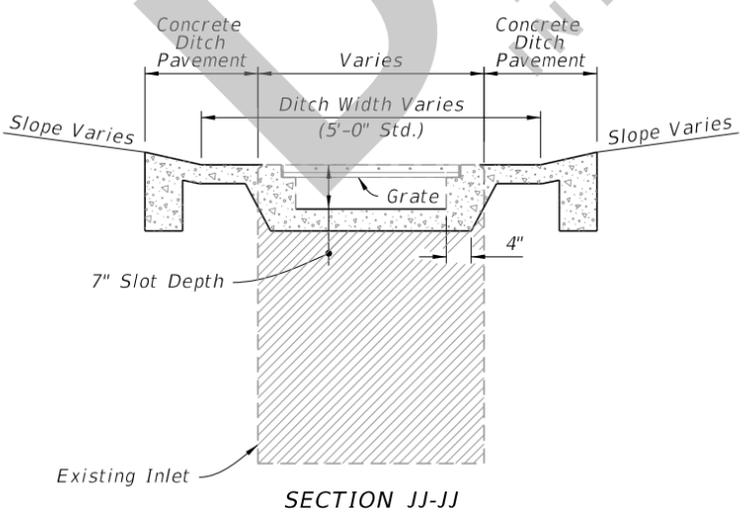
SECTION HH-HH

WITHOUT SLOT

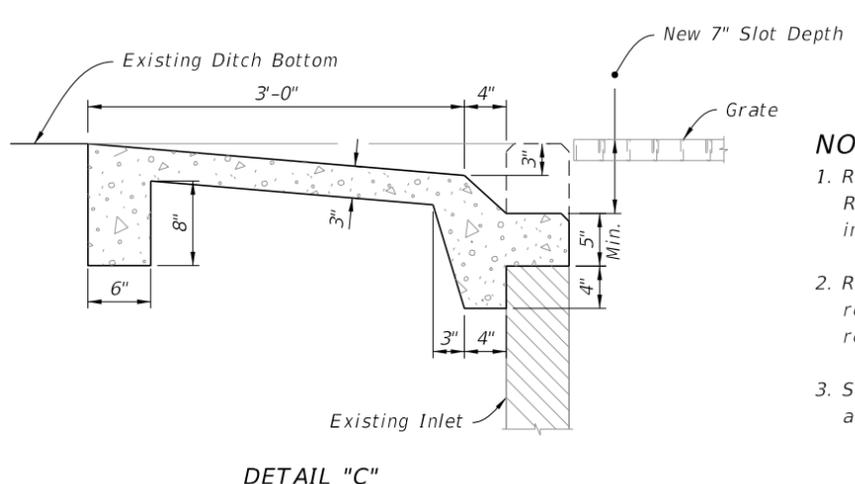
WITH SLOT



SECTION II-II



SECTION JJ-JJ



DETAIL "C"

- NOTES:**
1. Replace existing cast iron grate with steel grate. Replace existing steel grate when called for in the plans or as directed by the Engineer.
 2. Remove existing wall to this line (exposed rebar in pavement zone may be either removed or embedded)
 3. Single Slot shown, Double Slots symmetrical about the Inlet centerline.

CASE 1 - ADD TRAVERSABLE SLOTS TO EXISTING INLETS

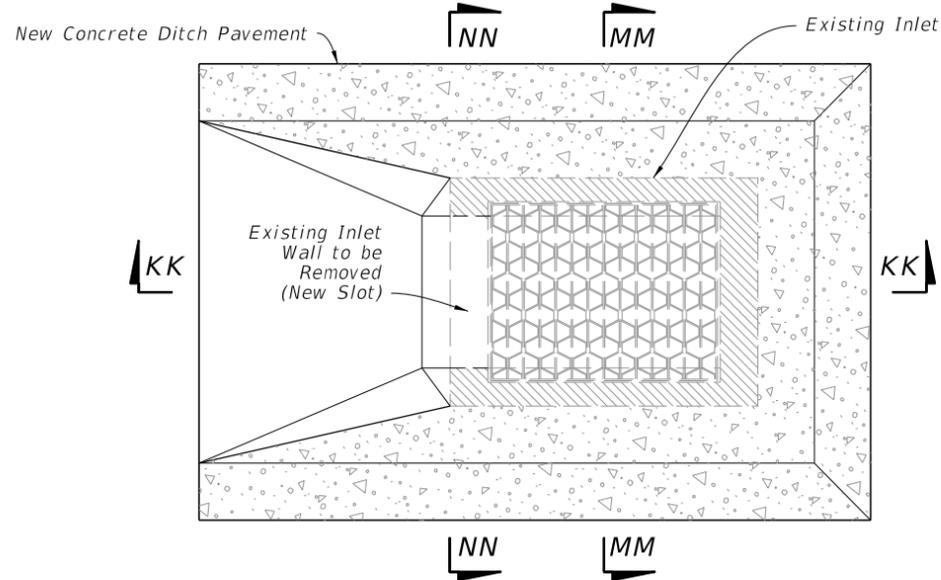
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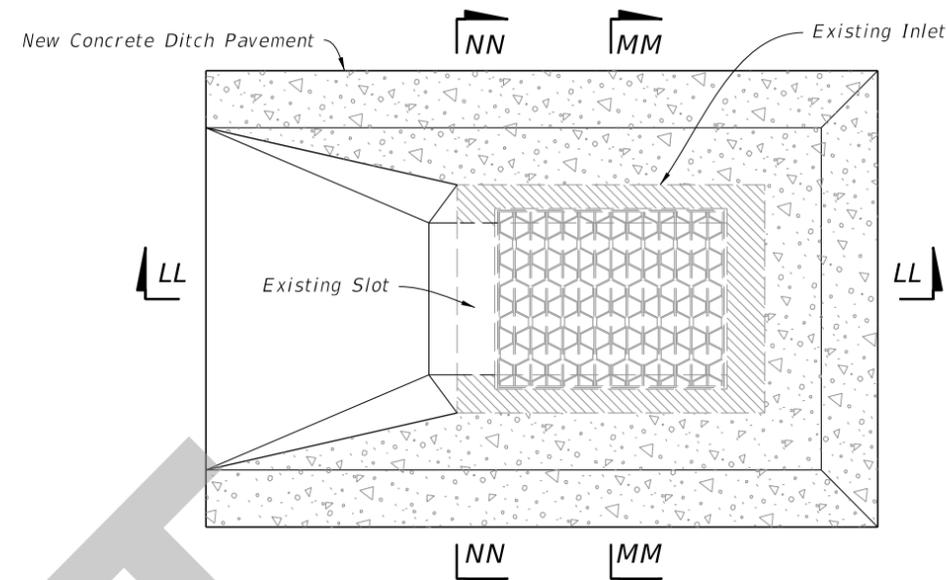

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DITCH BOTTOM INLET TYPE C, D, E, AND H

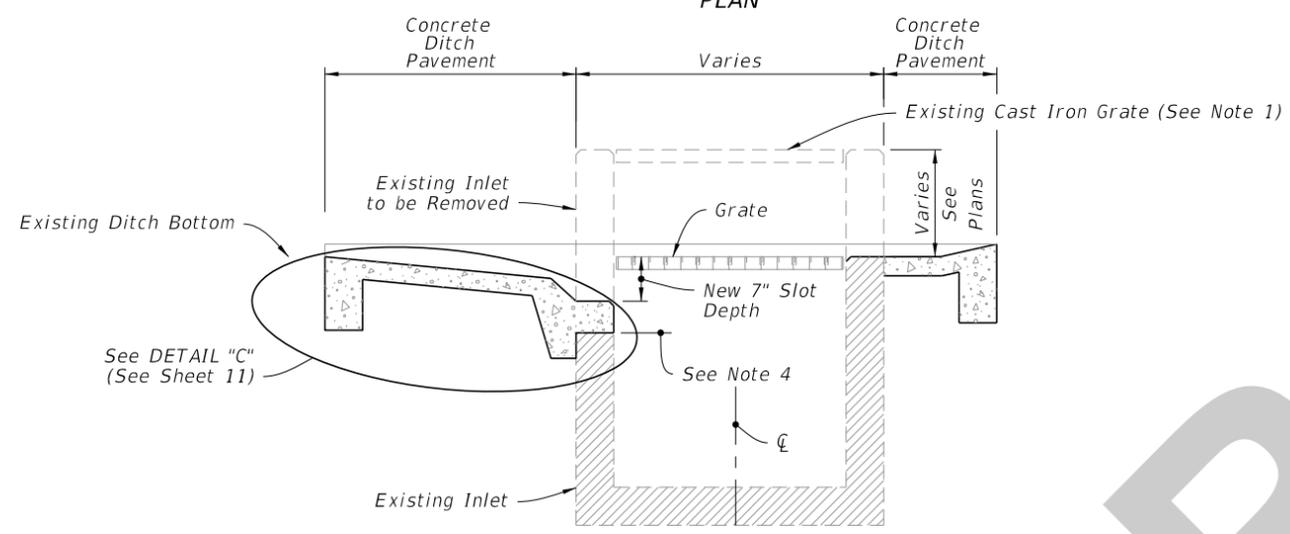
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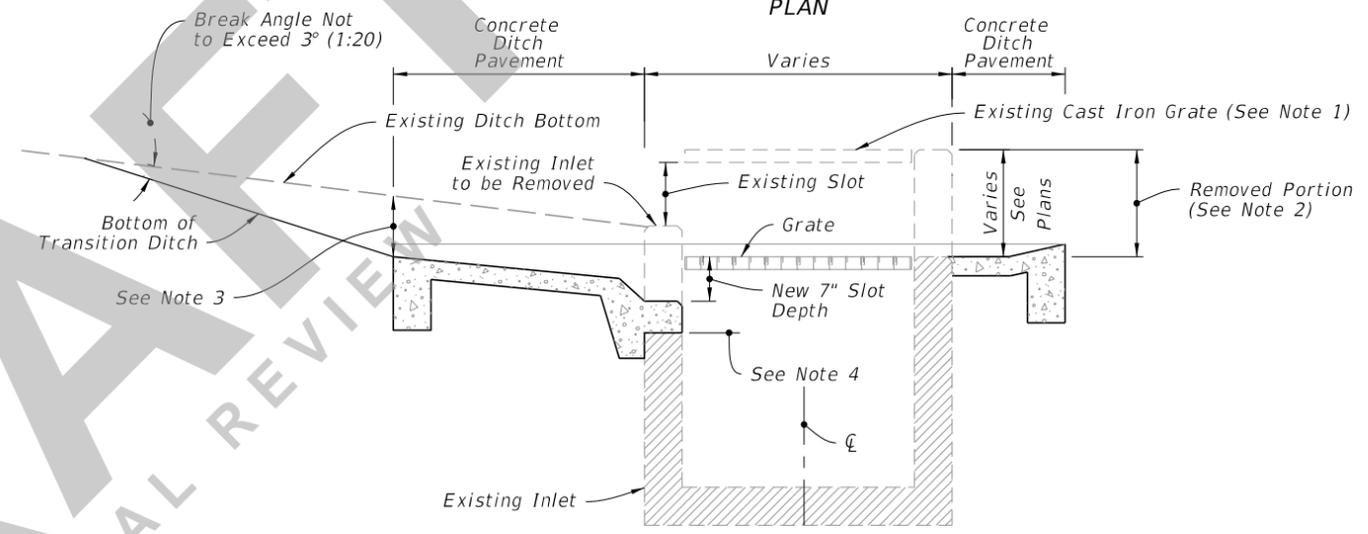
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PLAN



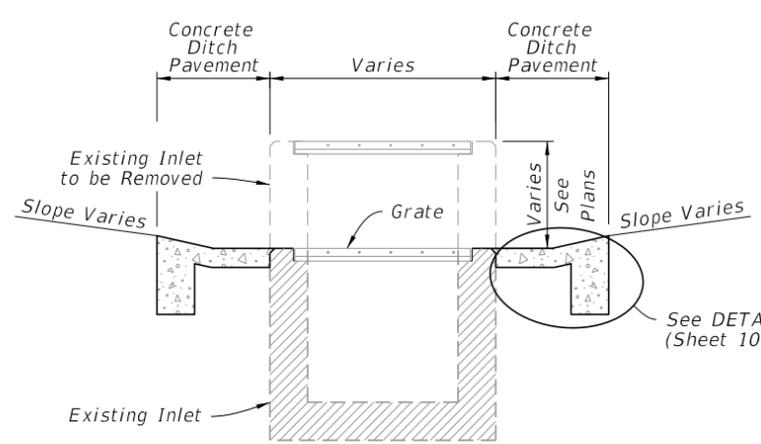
SECTION KK-KK



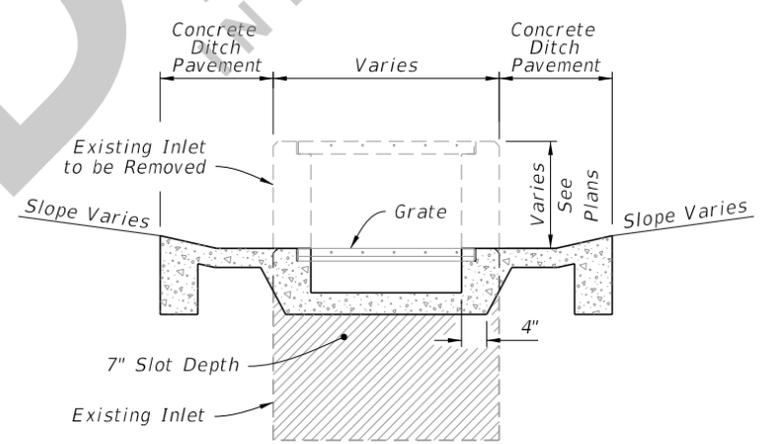
SECTION LL-LL

WITHOUT SLOT

WITH SLOT



SECTION MM-MM



SECTION NN-NN

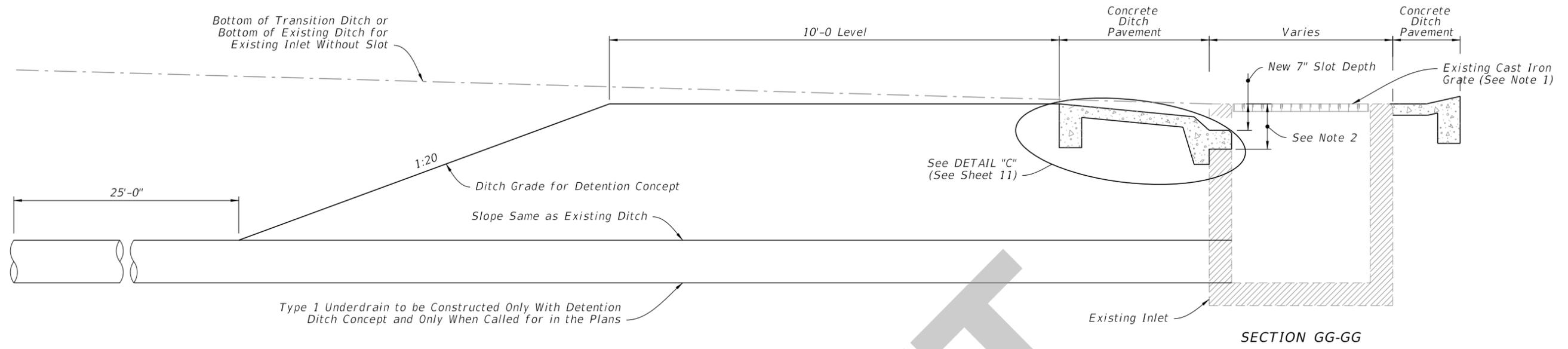
NOTES:

- Existing cast iron grate to be replaced with steel grate. Existing steel reticulate grate to be replaced when called for in the Plans or as directed by the Engineer.
- Remove this portion of box and construct new, concrete ditch pavement, seats and slot (s) (slots if required).
- These points can be the same or nearly the same where ditch grades are flat.
- Remove exist. wall to this line (exposed rebar in part. zone may be either removed or embedded).
- Single Slot shown, Double Slots symmetrical about the Inlet centerline.

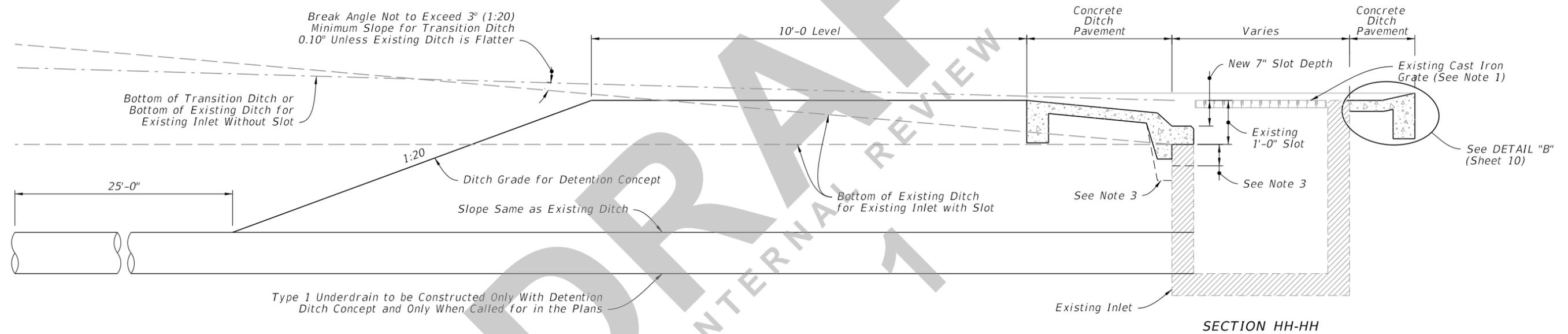
CASE 2 - ADD TRAVERSABLE SLOTS (PARTIAL) TO EXISTING INLETS

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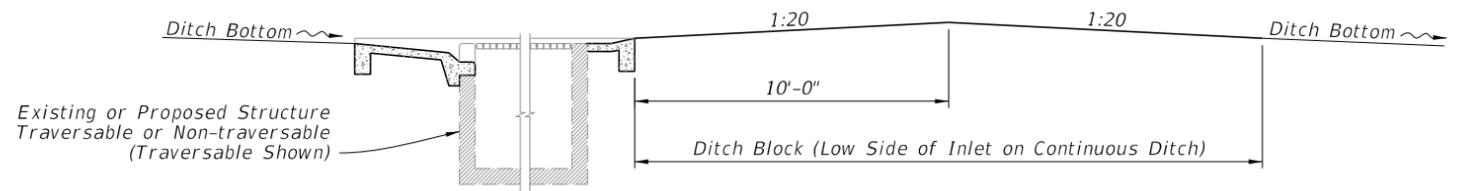
WITHOUT SLOT



WITH SLOT

NOTES:

1. Existing cast iron grate to be replaced with steel grate. Existing steel reticuline grate to be replaced when called for in the Plans or as directed by the Engineer.
2. Remove existing wall to this line (exposed rebar in pavement zone may be either removed or embedded)
3. Install extra pavement when existing slot exceeds 12" in depth.
4. Inlet details (With or Without Slots) similar to details on Sheet 11.

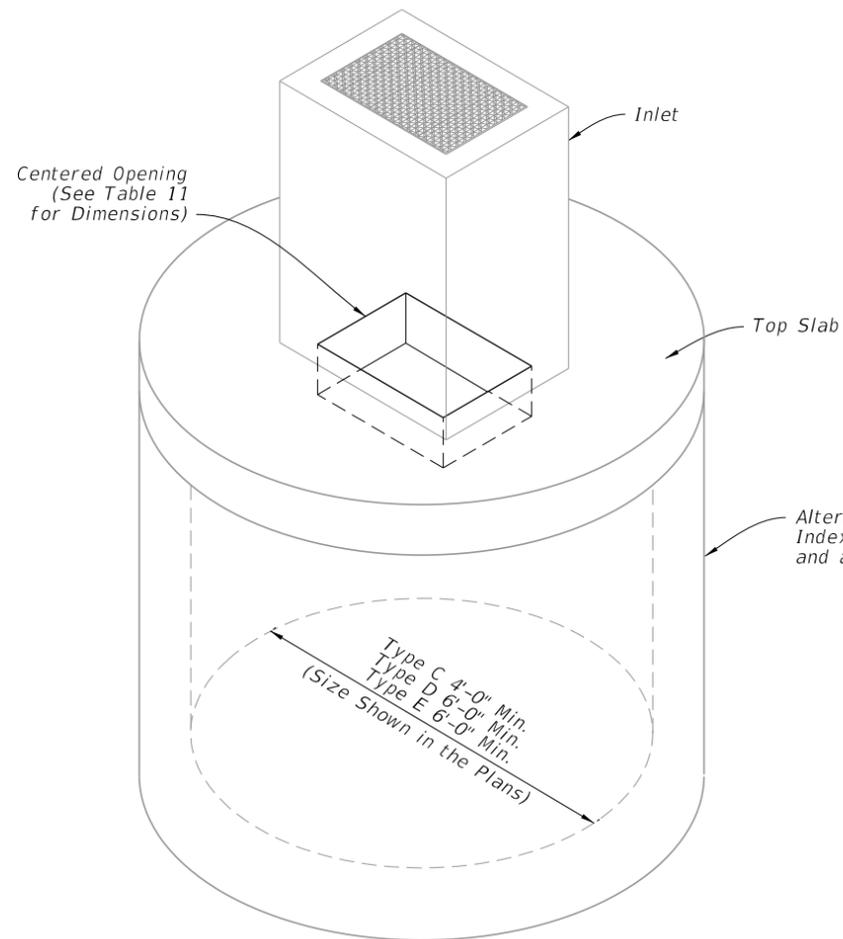


DITCH BLOCK FOR INLETS WITH OR WITHOUT SLOTS

CASE 3 - ADD TRAVERSABLE SLOTS (PARTIAL) TO EXISTING INLETS AND DITCH BLOCK

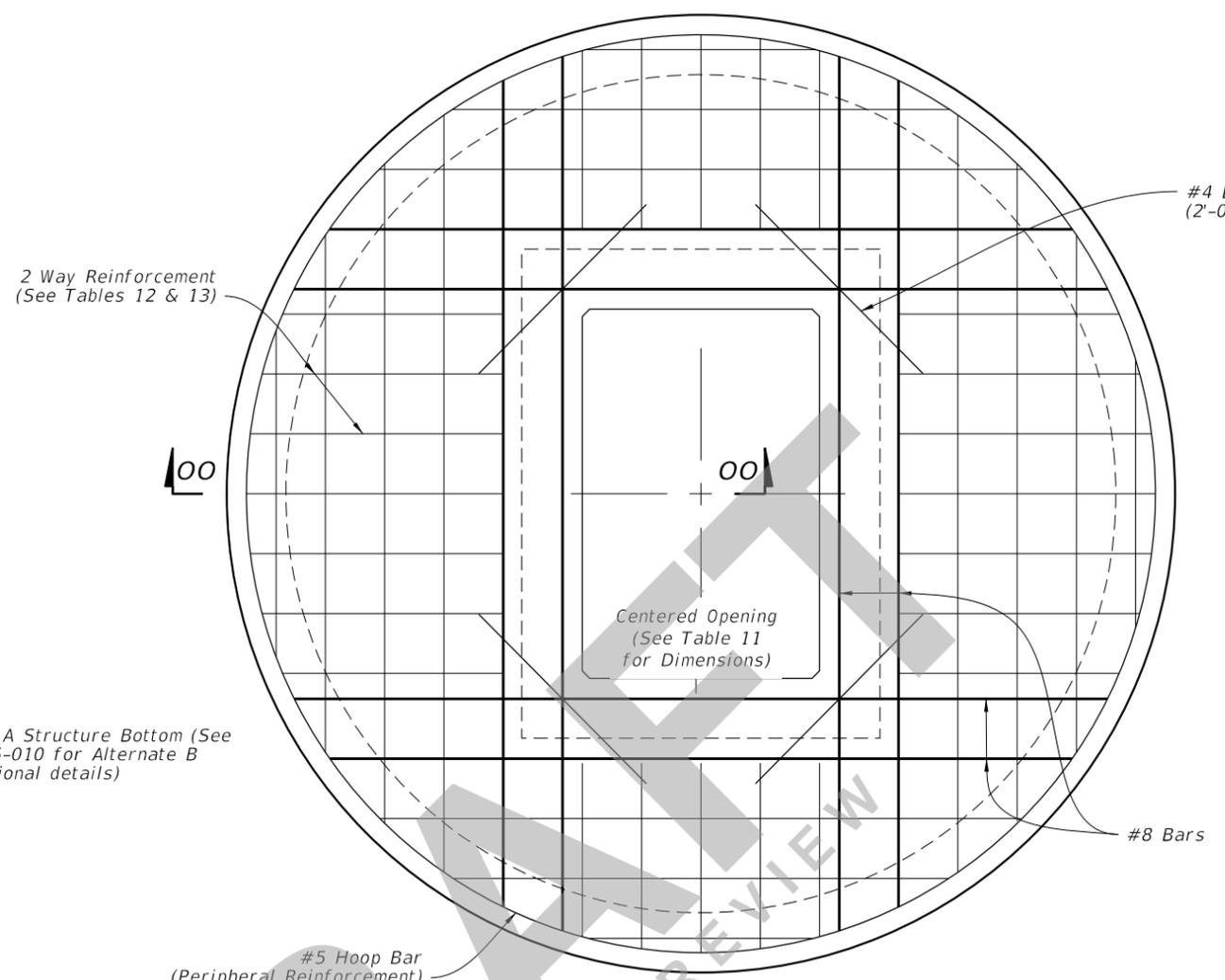
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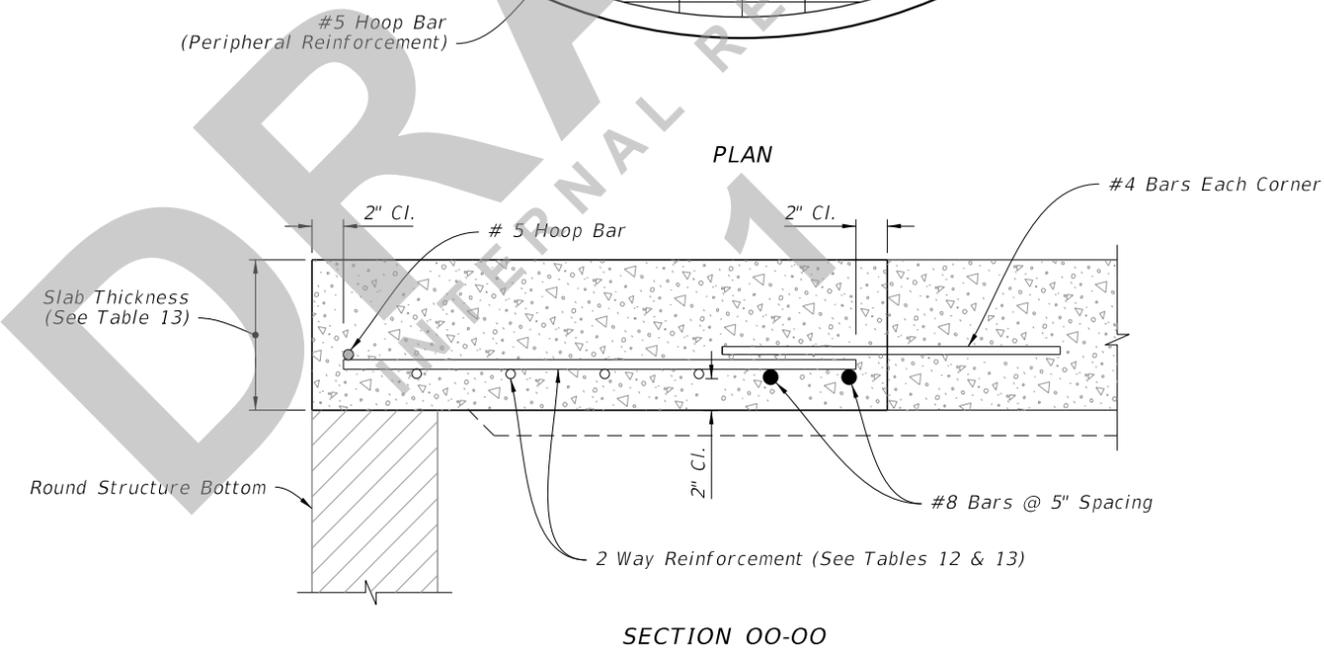
**TABLE 11
TOP SLAB OPENINGS**

DIAMETER	OPENING SIZE	
	Min.	Max.
4'-0"	2'-0" x 3'-1"	2'-0" x 3'-1"
5'-0"	2'-0" x 3'-1"	3'-1" x 4'-1"
6'-0"	2'-0" x 3'-1"	3'-0" x 4'-6"
8'-0"	2'-0" x 3'-1"	3'-0" x 4'-6"



**TABLE 12
TOP SLAB
REINFORCING SCHEDULE**

SCHEDULE	GRADE 60 (BAR) OR 65 KSI & 70 KSI (WIRE REINFORCING) In. ² /ft.
A	0.20
B	0.24
C	0.37
D	0.53
E	0.73
F	1.06
G	1.45



**TABLE 13
TOP SLAB WITH
CENTERED OPENING**

STRUCTURE DEPTH	SLAB THICKNESS	REINFORCING (2 WAY) SCHEDULE
SIZE: 4'-0"		
≥0.5' < 40'	9½"	B
SIZE: 5'-0"		
≥0.5' < 30'	9½"	C
30' - 40'	9½"	D
SIZE: 6'-0"		
≥0.5' < 8'	11½"	B
8' < 18'	11½"	C
18' < 30'	11½"	D
30' < 37'	11½"	E
37' - 40'	11½"	G
SIZE: 8'-0"		
≥0.5' < 9'	11½"	C
9' < 15'	11½"	D
15' < 23'	11½"	E
23' < 33'	11½"	E
33' - 40'	11½"	G

ISOMETRIC VIEW

TOP SLAB REINFORCEMENT DETAILS

ALTERNATE A STRUCTURE BOTTOM - TOP SLAB DETAILS

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