

City of Hattiesburg, MS

*200 Forrest St.
P.O. Box 1898
Hattiesburg, MS 39401*



Meeting Agenda - Final

Monday, July 2, 2018

4:00 PM

Council Chambers

City Council - Public Hearing, Unsafe Properties

1. [2018-569](#) Hold Public Hearing on July 2, 2018 to determine if properties are in such state of uncleanness so as to be a menace to the health and safety of the community.

Attachments:

[P.H. memo 7.3.18](#)
[Removal of case memo](#)
[1. 804 E. 6th St.](#)
[2. 1104 Franklin St](#)
[3. 315 Miller St.](#)
[4. 990 Hardy St.](#)
[5. 530 Buschman St.](#)
[6. 1326 Pine St.](#)
[7. 210 Rosa Ave](#)
[8. 325 Emerson Dr.](#)
[9. 607 Graymont Ave.](#)
[10. 3818 Eagle Dr.](#)
[11. 107 E 7th St](#)
[12. 705 Bouie St](#)



City of Hattiesburg, MS

200 Forrest St.
P.O. Box 1898
Hattiesburg, MS 39401

Master

File Number: 2018-569

File ID: 2018-569

Type: Regular Agenda Item

Status: Agenda Ready

Version: 1

Reference:

In Control: City Council

Requester: Chris Price

File Created: 06/21/2018

Brief Title: Public Hearing to determine if properties in state of uncleanliness

Final Action:

Minute Book Number: MB2018-163

Title: Hold Public Hearing on July 2, 2018 to determine if properties are in such state of uncleanliness so as to be a menace to the health and safety of the community.

Notes:

Agenda Date: 07/02/2018

Indexes:

Agenda Number: 1.

Sponsors:

Enactment Date:

Attachments: P.H. memo 7.3.18, Removal of case memo, 1. 804 E. 6th St., 2. 1104 Franklin St, 3. 315 Miller St., 4. 990 Hardy St., 5. 530 Buschman St., 6. 1326 Pine St., 7. 210 Rosa Ave, 8. 325 Emerson Dr., 9. 607 Graymont Ave., 10. 3818 Eagle Dr., 11. 107 E 7th St, 12. 705 Bouie St

Enactment Number:

Contact:

Meeting Date: 07/02/2018

Drafter: Ashley Fortenberry

Effective Date:

History of Legislative File

Ver- sion:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:
1	City Council - Public Hearing, Unsafe Properties	07/02/2018					

Action Text: Regarding Case #12 (705 Bouie Street), Roy Lee Price stated that he has been trying to work on maintaining the yard. Council President Carroll asked Code Enforcement Division Manager, Chris Price, when were the pictures of the property taken. Mr. Chris Price responded that the pictures were taken in the early Spring. He said he had driven by the property a couple days ago and that the property still appeared to be in the same condition. Mr. Roy Lee Price said he was expecting help from a local pastor with the clean up effort, and that he expected to meet with Habitat for Humanity next Thursday to ask for additional help. Council President Carroll stated that the Council would continue to pursue the case, but encouraged Mr. Roy Lee Price to continue making progress to the property.

There were no other citizens present who wished to address the Council regarding properties listed for the public hearing.

By unanimous consent, Council President Carroll closed the public hearing at 4:08 p.m. and proceeded with the Agenda Review.

Text of Legislative File 2018-569

Title

Hold Public Hearing on July 2, 2018 to determine if properties are in such state of uncleanness so as to be a menace to the health and safety of the community.

Summary

Public Hearing - Unsafe Properties, 07/02/18.

Budget Information

Expenditure Type

Purchasing Item

Publication Information



MAYOR
Toby Barker

COUNCIL - WARD ONE
Jeffrey George

COUNCIL - WARD TWO
Deborah Denard Delgado

COUNCIL - WARD THREE
Carter Carroll

COUNCIL - WARD FOUR
Mary Dryden

COUNCIL - WARD FIVE
Nicholas Brown

MEMORANDUM

TO: Mayor and City Council

FROM: Chris Price, Code Enforcement Manager

DATE: June 21, 2018

RE: Public Hearing 07/03/2018

Hold Public Hearing on Monday July 3, 2018 to determine if the following properties are in such a state of uncleanliness so as to be a menace to the health and safety of the community, according to the provisions of MS Code 1972, Section 21-19-11.

Address	PPIN #	Ward	Violations
1. 804 East 6 th St.	015451	2	AB, DB, OGL, T&L, VS, DM
2. 1104 Franklin St.	024108	2	AB, DB, OGL, US, T&L, VS DM
3. 315 Miller St.	020574	2	DS, OGL, US, T&L, DM
4. 990 Hardy St.	013242	4	OGL, VS
5. 530 Buschman St.	015803	4	DS, OGL, T&L
6. 1326 Pine St.	015216	5	AB, DS, OGL
7. 210 Rosa Ave.	013821	2	OGL, VS
8. 325 Emerson Dr.	022813	4	OGL, T&L, VS
9. 607 Graymont Ave.	024991	2	OGL

10. 3818 Eagle Dr.	014881	1	ES, OGL, T&L, VS
11. 107 E. 7 th St.	014449	2	OGL, T&L
12. 705 Bouie St.	017501	2	DS, OGL, T&L, VS

Trash & Litter=T&L
Vacant Structure=VS
Dangerous Structure=DS
Overgrown Lot=OGL
Open Storage=OS
Protective Treatment=PT
Accessory Structure=AS
Unsafe Structure=US
Abandoned Vehicle=AV
Interior Structure=IS
Exterior Structure=ES
Electrical=EL
Responsibility (Water) =RW
Hazardous Tree=HT
Glazing=GL
PID=Premise Id
X's2=2 Structures
Structure Built in Right of Way= SBROW
Demo=DM



MAYOR
Toby Barker

COUNCIL - WARD ONE
Jeffrey George

COUNCIL - WARD TWO
Deborah Denard Delgado

COUNCIL - WARD THREE
Carter Carroll

COUNCIL - WARD FOUR
Mary Dryden

COUNCIL - WARD FIVE
Nicholas Brown

MEMORANDUM

TO: Mayor and City Council

FROM: Chris Price, Code Enforcement Manager

DATE: June 21, 2018

RE: Removal of Case Number 10 from List of Unsafe Properties for July 2, 2018 Public Hearing on Unsafe Properties

The Code Enforcement Division requests the removal of Case Number 10 from the list of properties being considered during the July 2, 2018, Public Hearing on unsafe properties. Case Number 10, 3818 Eagle Dr., PPIN 014893 address was not published in the newspaper and the owners did not receive a letter in advance.



Case History For

804 E. 6th St.

Ward: 2

Action Center: 04-18-005889

Date: April 2, 2018

PPIN: 15451

Owners: Peggy Smith

Violations: Abandoned Building, Dilapidated Building, Overgrown Lot, Trash and Litter, Vacant Structure

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 1

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Peggy Smith, 134 City Park Circle HATTIESBURG, MS 39401 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-029H-03-295, 804 East 6th ST. HATTIESBURG, MS 39401 39401 described real property, situated and being in the City of Hattiesburg, County of Forrest, State of Mississippi, and mire particularly described as follows, to-wit:

All of Lot 10 and the West 16 feet of Lot 11 in Block 9 of the T.M. Fuller & O.J. Brown Survey or Addition to the City of Hattiesburg, Forrest County, Mississippi, being a part of the SE ¼ of the SE 14/4 of Section 3, Township 4 North, Range 13 West, together with all improvements thereon.

Publication: June 14, 2018

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Peggy Smith

Street and Apt. No. or PO Box No.

134 City Park Circle

City, State, ZIP+4®

Hattiesburg, MS 39401

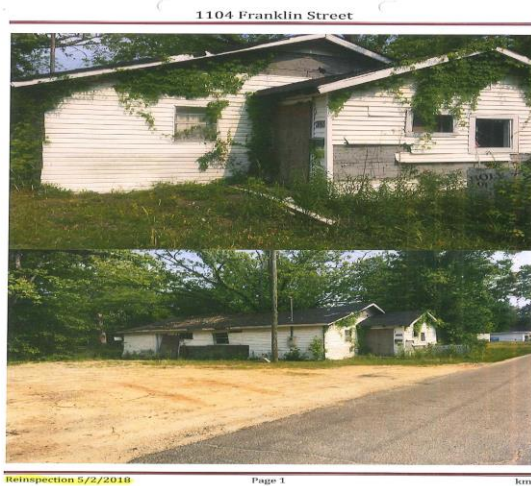
Postmark
Here

804 E. 6th St

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

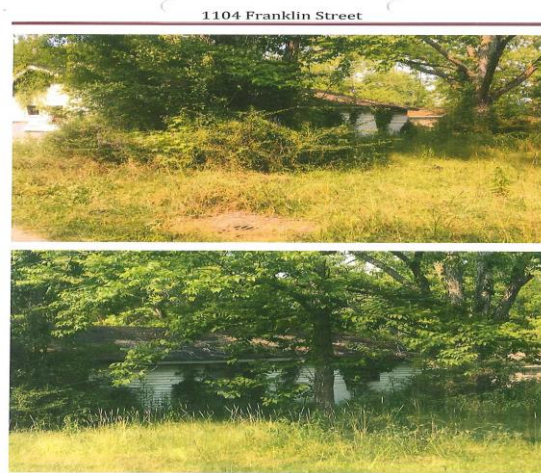
804 E. 6th St.



Reinspection 5/2/2018

Page 1

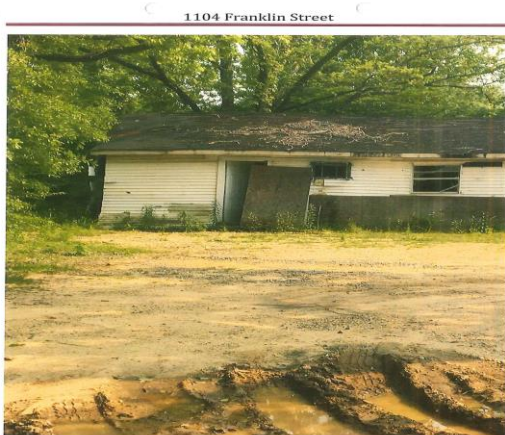
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Reinspection 5/2/2018

Page 2

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Reinspection 5/2/2018

Page 3

km

Case History For

1104 Franklin St.

Ward: 2

Action Center: 04-18-005926

Date: March 7, 2018

PPIN: 24108

Owners: Church of God in Christ
Faith Tabernacle

Violations: Abandoned Building,
Dilapidated Building, Overgrown Lot,
Trash and Litter, Unsafe Structure,
Vacant Structure

Case History: This property is in an
abandoned and dilapidated state
which has continued for several
years. Code Enforcement seeks a
Council Resolution in an effort to
correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 2

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Church of God In Christ Faith, 1104 Franklin St. HATTIESBURG, MS 39401 and all unknown persons
claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-038B-15-540, 1104 Franklin ST. HATTIESBURG, MS 39401 described real property, situated and being in the City of Hattiesburg, County of Forrest, State of Mississippi, and more particularly described as follows, to-wit:

Lot Seven (7), Block Two (2) of the J.B. STEVENS AND W.M. CONNER SUBDIVISION, in the City of Hattiesburg, County of Forrest, State of Mississippi, as per the map or plat thereof on file in the office of the Chancery Clerk of Forrest County, Mississippi; together with all improvements thereon and appurtenances thereto belonging.

Publication: June 14, 2018

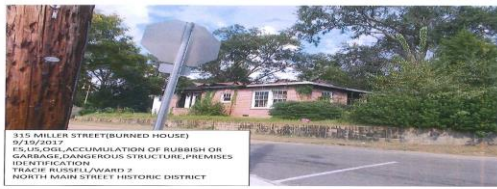
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Total Postage and Fees \$	1104 Franklin St
Sent To <u>Chris Haynes</u>	
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City, State, ZIP+4® <u>Hattiesburg, MS 39401</u>	
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Postage \$	
Total Postage and Fees \$	1104 Franklin
Sent To <u>Church of God in Christ Faith</u>	
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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

1104 Franklin St.



Case History For

315 Miller St.

Ward: 2/ North Main Street Historic District

Action Center: 09-17-005722

Date: September 26, 2017

PPIN: 20574

Owners: M & R Farms of Meridian and Rodney and Carol Johnson

Violations: Dangerous Structure, Overgrown Lot, Trash and Litter, Unsafe Structure

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Tracie Russell

601-554-1011

Case 3

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Rodney & Carol Lynn Johnson, P O Box 18751 Hattiesburg, MS 39404; Ricky Lindsey, P O Box 282
News Augusta, MS 39462 and all unknown persons claiming any right, title or interest in or to the
hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as
annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at
4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or
not the hereinafter-described property is in such a state of uncleanness to be a menace to the public
health and safety of the community. You have a right to file an answer and to appear at said hearing in
person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall
adjudicate the property in its then condition to be a menace to the health and safety of the community,
the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared
pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of
cleaning said property and the costs may become assessment against the property, which shall be a lien
against said property all as provided by statute, to wit:

PARCEL: 2-029K-09-135, 315 Miller ST. HATTIESBURG, MS 39401 and better described as:

Lot 9, Block 5, C.J. Miller Survey, and Forrest County, Mississippi, as per the official map or plat thereof
on file in the office of the Chancery Clerk of Forrest County, Mississippi

Publication: June 14, 2018

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Postage

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Total Postage and Fees

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Sent To

Rodney & Carol Lynn Johnson

Street and Apt. No., or PO Box No.

P.O. Box 18751

City, State, ZIP+4®

Hattiesburg, MS 39404

Postmark
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PS Form 3800, April 2015 PSN 7510-02-000-9047

See Reverse for Instructions

315 Miller St.



Case History For

990 Hardy St.

Ward: 4

Action Center: 06-16-005408

Date: June 21, 2016

PPIN: 13242

Owners: MMM Properties LLC

Violations: Vacant Structure,
Overgrown Lot,

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Tracie Russell

601-554-1011

Case 4

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO CLEAR ALL CODE VIOLATIONS

TO: MMM Properties LLC, 728 North BLVD, Baton Rouge LA 70802 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanliness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-029N-09-029, 990 Hardy ST. HATTIESBURG, MS 39401 and better described as:

All of Lot 7, except 8 feet off the East side thereof, and all of Lots 8, 9, and 10 of the W.C. Bennett Addition to the City of Hattiesburg, Forrest County, Mississippi, being a re-subdivision of a part of Block G of the John Kamper Survey, and also a re-subdivision of Lots 1-6 inclusive of the Hardy Subdivision of Blocks F and G of the Kamper Survey in the NW ¼ of the SE 1./4 of Section 9, T-4-N, R-13-W, in the City of Hattiesburg, Forrest County, Mississippi, said property being also described as the West 42 feet of Lot 7 and all of Lots 8, 9, and 10 in the W.C. Bennett Addition to the City of Hattiesburg, Forrest County, Mississippi.

Publication: June 14, 2018

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Total Postage and Fees

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MMM Properties LLC.

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Baton Rouge, LA 70802

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990 Hardy

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

990 Hardy St.



Case History For

530 Buschman St.

Ward: 2

Action Center: 9-15-5097

Date: May 10, 2016

PPIN: 15803

Owners: Benjamin Benson and Julian Thomas Benson

Violations: Dangerous Structure, Overgrown Lot, Trash and Litter

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Tracie Russell

601-554-1011

Case 5

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Julian Thomas Benson, 530 Buschman St. Hattiesburg, MS 39401 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanliness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-029I-10-168, 530 Buschman ST. HATTIESBURG, MS 39401 and better described as:

All of Lot one (1), two (2), three (3), four (4), five (5), six (6), seven (7), eight (8), and lots thirteen (13), fourteen (14), fifteen (15), and sixteen (16) of Block 49 (forty-nine) of Hardy and Scott Survey in the City of Hattiesburg, County of Forrest, State of Mississippi together with all improvements thereon belonging.

Publication: June 14, 2018

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Postage	
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Total Postage and Fees	
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530 Buschman

Sent To	Julian Thomas Benson
Street and Apt. No. or PO Box No.	530 Buschman St.
City, State ZIP+4®	Hattiesburg, MS 39401

530 Buschman St.



Case History For

1326 Pine St.

Ward: 5

Action Center: 04-18-005947

Date: April 20, 2018

PPIN: 15216

Owners: Wali's Stop Shoppe

Violations: Abandoned Building,
Dangerous Structure Overgrown Lot,

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Tywan Kidd

601-554-1007

Case 6

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Wali's Stop Shoppe LLC P O Box 188 Chunky, MS 39323 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-038C-16-300, 1326 Pine ST. HATTIESBURG, MS 39401 and better described as:

Commencing as the Northeasterly corner of Block 70 of Plat Number One of the D. D. McInnis Third Addition to the City of Hattiesburg, at the intersection of the Southern line of West Royal Street and the Western right of way line of the New Orleans and Northeastern Railroad Company; run thence Southwardly along said right way and the Eastern boundary line of Block 70, 1405 feet; thence parallel with said Southern line of West Royal Street Westwardly 433 feet to the Eastern west boundary line of West Pine Street for a point of beginning; thence Northwardly along the Eastern boundary line of West Pine Street 100 feet; thence at right angles Easterly and parallel with Southern line of West Riyal Street 100 feet; thence Southwardly and parallel with said Eastern line of West Pine Street 100 feet; thence at right angles Westewardly and parallel with said Southern boundary line of West Royal Street 100 feet to the point of beginning, said lot or parcel fronting 100 feet on West Pine Street and extending back between parallel line 100 feet, and being located in Section 16, Township 4 North, Range 13 West, in said County and State, and being embraced in what is known as the "Ferguson and McInnis Subdivision of Block 70 of the D. D. McInnis Third addition to the City of Hattiesburg, Mississippi," map of which has never been approved by the City and County authorities and never recorded.

Publication: June 14, 2018

7016 0360 0001 4396 8783

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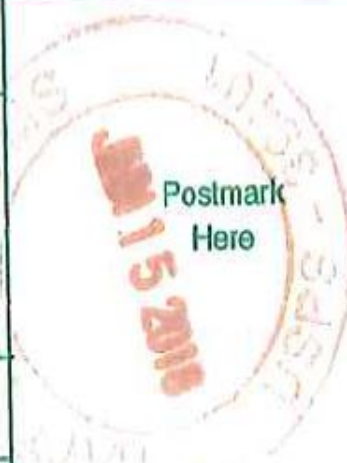
Wali's Shoppe LLC

Street and Apt. No., or PO Box No.

P.O. Box 188

City, State, ZIP+4®

Chunky, MS 39323



1326 Pine St.

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

1326 Pine St.



Case History For

210 Rosa Ave.

Ward: 2

Action Center: 03-18-005847

Date: March 1, 2018

PPIN: 13821

Owners: Durrant Inc.

Violations: Vacant Structure,
Overgrown Lot

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 7

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Durrant INC. P O Box 3520 Meridian, MS 39303 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanliness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-038B-15-217 210 Rosa Ave. HATTIESBURG, MS 39401 and better described as:

Lot 3, Block 6, Buschman J H Subdivision, Forrest County, Mississippi.

Publication: June 14, 2018

7018 0360 0001 4396 8707

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT <i>Domestic Mail Only</i>	
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☐ Return Receipt (hardcopy) \$	
☐ Return Receipt (electronic) \$	
☐ Certified Mail Restricted Delivery \$	
☐ Adult Signature Required \$	
☐ Adult Signature Restricted Delivery \$	
Postage \$	
Total Postage and Fees \$	
Sent To <u>Durrant Inc</u>	
Street and Apt. No., or PO Box No. <u>P.O. Box 3520</u>	
City, State, ZIP+4® <u>Murdan, MS 39303</u>	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

210 Rosa Ave.



Case History For

325 Emerson Dr.

Ward: 2

Action Center: 03-18-005863

Date: March 14, 2018

PPIN: 22813

Owners: Samuel & Ann Murchison

Violations: Vacant Structure,
Overgrown Lot, Trash and Litter

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 8

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO CLEAR ALL CODE VIOLATIONS

TO: Ann P and Samuel P Murchison 325 Emerson Dr. Hattiesburg, MS 39401 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanliness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-028J-08-072, 325 Emerson Dr., HATTIESBURG, MS 39401 and better described as:

Lot 152 of Parkhaven North Subdivision or Addition to Forrest County, Mississippi, as per the official map or plat thereof on file in the office of Chancery Clerk of Forrest County, Mississippi, together with the improvements lying thereon and appurtenances thereunto.

Publication: June 14, 2018

7016 0360 0001 4396 8721

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| ☐ Certified Mail Restricted Delivery | \$ | |
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| ☐ Adult Signature Restricted Delivery | \$ | |

Postage

\$

Total Postage and Fees

\$

Sent To

Samuel & Ann Murchinson

Street and Apt. No., or PO Box No.

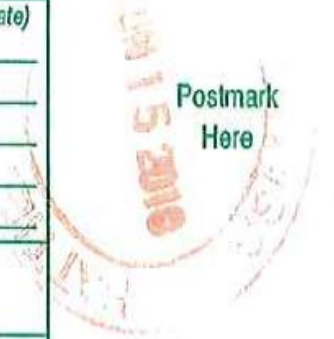
325 Emerson Dr.

City, State, ZIP+4®

Hattiesburg, MS 39401

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions



325 Emerson Dr.



Case History For

607 Graymont Ave.

Ward: 2

Action Center: 04-18-005891

Date: April 2, 2018

PPIN: 24991

Owners: The Bank of New York c/o HomeQ

Violations: Overgrown Lot

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 9

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: The Bank of New York c/o HomeQ P O Box 13909 Durham, NC 27709 and all unknown persons
claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-028H-05-143, 607 Graymont Ave., HATTIESBURG, MS 39401 and better described as:

Lot 2, Block 1 OF THE WESTVIEW SUBDIVISION, A SUBDIVISION ACCORDING TO A MAP OR PLAT THEREOF WHICH IS ON FILE AND OF RECORD IN THE OFFICE OF THE CHANCERY CLERK OF FORREST COUNTY, MISSISSIPPI, IN PLAT BOOK 8 AT PAGE 31; TOGETHER WITH ALL IMPROVEMENTS THEREON AND APPURTENANCES THEREUNTO BELONGING.

Publication: June 14, 2018

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☐ Return Receipt (electronic)	\$	
☐ Certified Mail Restricted Delivery	\$	
☐ Adult Signature Required	\$	
☐ Adult Signature Restricted Delivery	\$	

Postage
\$

Total Postage and Fees
\$

Postmark
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607 Graymont

Sent To The Bank of New York
Street and Apt. No., or PO Box No. P.O. Box 13909
City, State, ZIP+4® Durham, NC 27709

607 Graymont Ave



Feb 28, 2018, 2:50 PM



Feb 28, 2018, 2:49 PM

Case History For

3818 Eagle Dr.

Ward: 1

Action Center: 02-18-005841

Date: March 27, 2018

PPIN: 14893

Owners: Jewel Kohnke

Violations: Abandoned Structure, Overgrown Lot, Trash and Litter, Vacant Structure

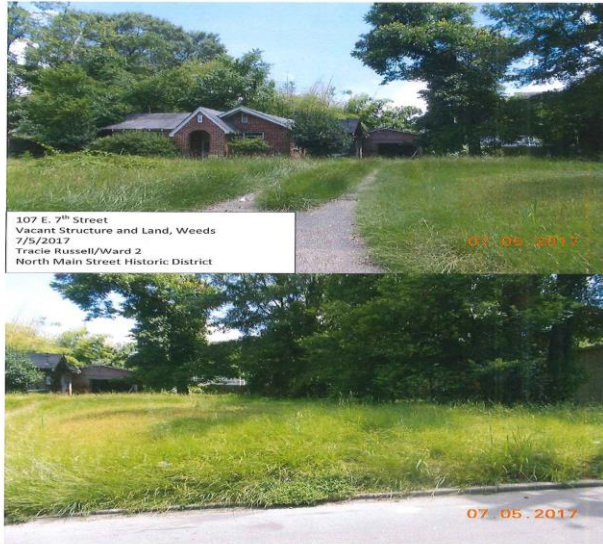
Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

LaKeisha Hall

601-554-1023

Case 10



Case History For

107 E. 7th St,

Ward: 2

Action Center: 07-17-005674

Date: July 6, 2017

PPIN: 14449

Owners: William Franklin and
Martha Cook

Violations: Overgrown Lot, Trash
and Litter

Case History: This property is in an
abandoned and dilapidated state
which has continued for several
years. Code Enforcement seeks a
Council Resolution in an effort to
correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 11

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: William Franklin and Martha Cook, 13527 BrookBluff Lane Houston, TX 77077 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-029F-04-287, 107 E. 7th St. HATTIESBURG, MS 39401 and better described as:

Commence at the point of intersection of the South Boundary of East Seventh Street and the Eastern Boundary of Main Street, as said streets are now laid out and used, and run in a Southeasterly direction along Main Street 83 feet; thence run East and parallel with East Seventh Street 271.5 feet; thence run North 72.7 feet to the South boundary of East Seventh Street to the point of beginning of the land hereby described and conveyed, said intersection of the South Boundary of Main Street; from said Point of Beginning, run East along the South boundary of East Seventh Street for a distance of 100 feet; thence run South 131.86 feet; thence run West and parallel with East Seventh Street 100 feet; thence run North 131.86 feet to the Point of Beginning; said property being a strip of land 100 feet off the East end of what is called Lot Twi (2) of the F. F. Phillips Third Addition as per the map or plat thereof on file and the record in the Chancery Clerk of Forrest County, Mississippi, together with all improvements lying thereon and appurtenances thereunto belonging.

Publication: June 14, 2018

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Sent To Martha Cook
 Street and Apt. No., or PO Box No. 13527 Brook Bluff Lane
 City, State, ZIP+4® Houston, TX 77077

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 JUN 15 2016

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Postage
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Total Postage and Fees
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Sent To William Franklin
 Street and Apt. No., or PO Box No. 13527 Brook Bluff Lane
 City, State, ZIP+4® Houston, TX 77077

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 JUN 15 2016

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

107 E. 7Th St.



Case History For

705 Bouie St.

Ward: 2

Action Center: 02-18-005830

Date: February 7, 2018

PPIN: 17501

Owners: Roy Lee Price

Violations: Dangerous Structure,
Overgrown Lot, Trash and Litter
Vacant Structure

Case History: This property is in an abandoned and dilapidated state which has continued for several years. Code Enforcement seeks a Council Resolution in an effort to correct the violations.

Inspector:

Karnella Myers

601-554-1009

Case 12

NOTICE OF HEARING BEFORE THE CITY COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI TO
CONDEMN DILAPIDATED BUILDING (S) AND/OR TO CLEAR ALL CODE VIOLATIONS

TO: Roy Lee Price P O Box 1049, MS 39401 and all unknown persons claiming any right, title or interest in or to the hereinafter described property.

PLEASE TAKE NOTICE PURSUANT TO §21-19-11 of the Mississippi Code of 1972, as annotated and amended, the City Council of the City of Hattiesburg will hold a public hearing at 4:00p.m. On July 2, 2018 in the Council room of the City Hall, Hattiesburg, MS to determine whether or not the hereinafter-described property is in such a state of uncleanness to be a menace to the public health and safety of the community. You have a right to file an answer and to appear at said hearing in person or otherwise and to offer your defense, if any. If, at such hearing, the City Council shall adjudicate the property in its then condition to be a menace to the health and safety of the community, the City of Hattiesburg shall, if the owner will not do so himself, proceed to have the land cleared pursuant to the aforesaid statute. The City of Hattiesburg may then adjudicate the costs plus penalty of cleaning said property and the costs may become assessment against the property, which shall be a lien against said property all as provided by statute, to wit:

PARCEL: 2-029H-03-139, 705 Bouie St. HATTIESBURG, MS 39401 and better described as:

Lot 12, Block 37 of the Hicks Subdivision of the Hardy & Scott Survey of the City of Hattiesburg as per map or plat thereof on file in the office of the Chancery Clerk, along with all improvements thereon and appurtenances thereunto belonging.

Publication: June 14, 2018

7012 0360 0001 4396 8752

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| ☐ Certified Mail Restricted Delivery | \$ | _____ |
| ☐ Adult Signature Required | \$ | _____ |
| ☐ Adult Signature Restricted Delivery | \$ | _____ |

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705 Bouie St

Sent To

Roy Lee Price

Street and Apt. No., or PO Box No.

P.O. Box 1049

City, State, ZIP+4®

Hattiesburg, MS 39401

PS Form 3800, April 2015 PSN 7530-02-000-9047

See Reverse for Instructions

705 Bouie ST

City of Hattiesburg, MS

*200 Forrest St.
P.O. Box 1898
Hattiesburg, MS 39401*



Meeting Agenda - Final

Monday, July 2, 2018

4:00 PM

for July 3, 2018 agenda

Council Chambers

City Council - Amendments to the Agenda

Postpone approval of the June 18 and 19, 2018, minutes until the July 17, 2018, Council meeting.

Add Policy Agenda Item VI.-9 at the request of the Administration as follows:

- VI.-9** [2018-582](#) Adopt a resolution authorizing submittal of FY-2018 "Better Utilizing Investments to Leverage Development" (BUILD) Discretionary Grant Program Application to the U.S. Department of Transportation seeking funds to construct an alternate transportation route to relieve traffic congestion due to railroad delays in the Downtown Area; Application is requesting \$22,000,000 of which 80% or \$17,600,000 is Federal, and 20% or \$4,400,000 is City.

Attachments: [RES - BUILD Discretionary Grant](#)
[Executed - Res#2018-94 - BUILD Discretionary Grant](#)

Add Routine Agenda Item VII.-10 at the request of the Administration as follows:

- VII.-10** [2018-583](#) Acknowledge no bids were received at the bid opening June 28, 2018 for the Infrastructure Rehabilitation Arledge Street & Katie Avenue Area project (related to the Public Safety Complex Project); Authorize re-advertisement for bids for same project.

Attachments: [Recommendation Letter for Re-advertisement](#)
[11258 Plans Street Ready Set Signed 2018-05-14](#)
[11258 Specs Review Set \(Lamar\)](#)
[ADVERTISEMENT FOR BIDS-readvertisement](#)
[Executed - ADVERTISEMENT FOR BIDS-readvertisement](#)

Add Work Session Agenda Item 5 at the request of the Administration as follows:

- 5. House Bill 1114 - Municipality's Authority to Address Overgrown Lots - Mayor**

And, Amend Work Session Agenda Item 3 to read as follows:

- 3. A Prevailing Wage Ordinance for Building/Construction Trades in the City of Hattiesburg - Delgado**



City of Hattiesburg, MS

200 Forrest St.
P.O. Box 1898
Hattiesburg, MS 39401

Master

File Number: 2018-582

File ID: 2018-582

Type: Regular Agenda Item

Status: Passed

Version: 1

Reference:

In Control: City Council

Requester: Lamar Rutland

File Created: 06/28/2018

Brief Title: Adopt a resolution authorizing submittal of FY-2018
"Better Utilizing Investments to Leverage
Development" (BUILD) Discretionary Grant Program
Application to the U.S. Department of Transportation.

Final Action:

Minute Book Number: MB2018-170

Title:

Adopt a resolution authorizing submittal of FY-2018 "Better Utilizing Investments to Leverage Development" (BUILD) Discretionary Grant Program Application to the U.S. Department of Transportation seeking funds to construct an alternate transportation route to relieve traffic congestion due to railroad delays in the Downtown Area; Application is requesting \$22,000,000 of which 80% or \$17,600,000 is Federal, and 20% or \$4,400,000 is City.

Notes:

Agenda Date: 07/03/2018

Indexes:

Agenda Number:

Sponsors:

Enactment Date:

Attachments: RES - BUILD Discretionary Grant, Executed -
Res#2018-94 - BUILD Discretionary Grant

Enactment Number:

Contact:

Meeting Date: 07/03/2018

Drafter: Sharon Waits

Effective Date:

History of Legislative File

Ver- sion:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:
1	City Council - Amendments to the Agenda	07/02/2018					
1	City Council - Public Hearing, Unsafe Properties	07/02/2018					
1	City Council	07/03/2018	Adopt				Pass

Action Text: A MOTION was made by Council Vice President Dryden and seconded by Council Member Delgado to Adopt a resolution authorizing submittal of FY-2018 "Better Utilizing Investments to Leverage Development" (BUILD) Discretionary Grant Program Application to the U.S. Department of Transportation seeking funds to construct an alternate transportation route to relieve traffic congestion due to railroad delays in the Downtown Area; Application is requesting \$22,000,000 of which 80% or \$17,600,000 is Federal, and 20% or \$4,400,000 is City.

There being no discussion, the Motion received the affirmative vote of the Council as follows:

Yeas: 5 - George, Delgado, Carroll, Dryden and Brown

Nays: 0

Yea: 5 Council Member George
 Council Member Delgado
 Council President Carroll
 Council Vice President Dryden
 Council Member Brown

Text of Legislative File 2018-582

Title

Adopt a resolution authorizing submittal of FY-2018 "Better Utilizing Investments to Leverage Development" (BUILD) Discretionary Grant Program Application to the U.S. Department of Transportation seeking funds to construct an alternate transportation route to relieve traffic congestion due to railroad delays in the Downtown Area; Application is requesting \$22,000,000 of which 80% or \$17,600,000 is Federal, and 20% or \$4,400,000 is City.

Summary

Adopt a resolution authorizing submittal of FY-2018 "Better Utilizing Investments to Leverage Development" (BUILD) Discretionary Grant Program Application to the U.S. Department of Transportation.

**RESOLUTION AUTHORIZING SUBMITTAL OF AN FY-2018
“BETTER UTILIZING INVESTMENTS TO LEVERAGE DEVELOPMENT” (BUILD)
DISCRETIONARY GRANT PROGRAM APPLICATION TO
THE U.S. DEPARTMENT OF TRANSPORTATION**

WHEREAS, the U.S. Department of Transportation’s National Infrastructure Investments under the Consolidated Appropriations Act, 2018, appropriated \$1.5 Billion to be awarded on a competitive basis through the **“Better Utilizing Investments to Leverage Development” (BUILD)** Discretionary Grant Program for capital investments which repair bridges or improve infrastructure to a state of good repair; projects that implement safety improvements to reduce fatalities and serious injuries, including improving grade crossings or providing shorter or more direct access to critical health services; projects that connect communities and people to jobs, services, and education; and, projects that anchor economic revitalization and job growth in communities.

WHEREAS, the City of Hattiesburg intends to apply for an FY-2018 BUILD Discretionary Program Grant in the amount of **\$22,000,000** (80% Federal Funds) to construct an alternate transportation route to relieve traffic congestion due to railroad delays in the Downtown area; and

WHEREAS, BUILD Discretionary Grants may be used for up to 80 percent of the costs of an eligible transportation project, which must be matched with at least 20 percent in non-federal funds that are not already expended or otherwise encumbered; and

WHEREAS, the City of Hattiesburg does hereby commit the minimum match commitment of **\$5,500,000**, which is 20 percent of the project costs; and

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI, THAT:

SECTION 1: The statements, findings, determinations, and conclusions contained in the preamble of this resolution are hereby adopted, ratified and incorporated herein.

SECTION 2: The Mayor, Municipal Clerk and such other representatives as may be necessary hereby are authorized to prepare and submit a FY-2018 BUILD Discretionary Program Grant

application to the US Department of Transportation to fund said project and to provide any additional information required by the US Department of Transportation in order to complete its review of said application.

The above and foregoing resolution, after having been first reduced to writing, was introduced by Council Member _____, seconded by Council Member _____, and was adopted by the following roll call vote, to wit:

YEAS:

NAYS:

The President thereby declared the motion carried and the resolution adopted, this the 3rd day of **July**, 2018.

(SEAL)

ATTEST:

ADOPTED:

CLERK OF COUNCIL

COUNCIL PRESIDENT

The above and foregoing Resolution having been submitted to and approved by the Mayor, this the 3rd day of **July**, 2018.

CITY CLERK

MAYOR

**RESOLUTION AUTHORIZING SUBMITTAL OF AN FY-2018
“BETTER UTILIZING INVESTMENTS TO LEVERAGE DEVELOPMENT” (BUILD)
DISCRETIONARY GRANT PROGRAM APPLICATION TO
THE U.S. DEPARTMENT OF TRANSPORTATION**

WHEREAS, the U.S. Department of Transportation’s National Infrastructure Investments under the Consolidated Appropriations Act, 2018, appropriated \$1.5 Billion to be awarded on a competitive basis through the **“Better Utilizing Investments to Leverage Development” (BUILD)** Discretionary Grant Program for capital investments which repair bridges or improve infrastructure to a state of good repair; projects that implement safety improvements to reduce fatalities and serious injuries, including improving grade crossings or providing shorter or more direct access to critical health services; projects that connect communities and people to jobs, services, and education; and, projects that anchor economic revitalization and job growth in communities.

WHEREAS, the City of Hattiesburg intends to apply for an FY-2018 BUILD Discretionary Program Grant in the amount of **\$22,000,000** (80% Federal Funds) to construct an alternate transportation route to relieve traffic congestion due to railroad delays in the Downtown area; and

WHEREAS, BUILD Discretionary Grants may be used for up to 80 percent of the costs of an eligible transportation project, which must be matched with at least 20 percent in non-federal funds that are not already expended or otherwise encumbered; and

WHEREAS, the City of Hattiesburg does hereby commit the minimum match commitment of **\$5,500,000**, which is 20 percent of the project costs; and

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF HATTIESBURG, MISSISSIPPI, THAT:

SECTION 1: The statements, findings, determinations, and conclusions contained in the preamble of this resolution are hereby adopted, ratified and incorporated herein.

SECTION 2: The Mayor, Municipal Clerk and such other representatives as may be necessary hereby are authorized to prepare and submit a FY-2018 BUILD Discretionary Program Grant

application to the US Department of Transportation to fund said project and to provide any additional information required by the US Department of Transportation in order to complete its review of said application.

The above and foregoing resolution, after having been first reduced to writing, was introduced by Council Member Dryden, seconded by Council Member Delgado, and was adopted by the following roll call vote, to wit:

YEAS: George
Delgado
Carroll
Dryden
Brown

NAYS: None

The President thereby declared the motion carried and the resolution adopted, this the 3rd day of July, 2018.

(SEAL)

ATTEST:


Deputy CLERK OF COUNCIL

ADOPTED:


COUNCIL PRESIDENT

The above and foregoing Resolution having been submitted to and approved by the Mayor, this the 3rd day of July, 2018.


CITY CLERK


MAYOR



City of Hattiesburg, MS

200 Forrest St.
P.O. Box 1898
Hattiesburg, MS 39401

Master

File Number: 2018-583

File ID: 2018-583

Type: Regular Agenda Item

Status: Agenda Ready

Version: 1

Reference:

In Control: City Council

Requester: Lamar Rutland

File Created: 07/02/2018

Brief Title: Acknowledge no bids were received at the bid opening June 28, 2018 for the Infrastructure Rehabilitation Arledge Street & Katie Avenue Area project; Authorize re-advertisement for bids for same project.

Final Action:

Minute Book Number: MB2018-172

Title:

Acknowledge no bids were received at the bid opening June 28, 2018 for the Infrastructure Rehabilitation Arledge Street & Katie Avenue Area project (related to the Public Safety Complex Project); Authorize re-advertisement for bids for same project.

Notes:

Agenda Date: 07/03/2018

Indexes:

Agenda Number:

Sponsors:

Enactment Date:

Attachments: Recommendation Letter for Re-advertisement, 11258_Plans_Street Ready Set_Signed_2018-05-14, 11258_Specs_Review Set_(Lamar), ADVERTISEMENT FOR BIDS-readvertisement, Executed - ADVERTISEMENT FOR BIDS-readvertisement

Enactment Number:

Contact:

Meeting Date: 07/03/2018

Drafter: Sharon Waits

Effective Date:

History of Legislative File

Ver- sion:	Acting Body:	Date:	Action:	Sent To:	Due Date:	Return Date:	Result:
1	City Council - Amendments to the Agenda	07/02/2018					
1	City Council - Public Hearing, Unsafe Properties	07/02/2018					
1	City Council	07/03/2018					

Text of Legislative File 2018-583

Title

Acknowledge no bids were received at the bid opening June 28, 2018 for the Infrastructure Rehabilitation Arledge Street & Katie Avenue Area project (related to the Public Safety Complex Project); Authorize re-advertisement for bids for same project.

Summary

Acknowledge no bids were received at the bid opening June 28, 2018 for the Infrastructure Rehabilitation Arledge Street & Katie Avenue Area project; Authorize re-advertisement for bids for same project.

Budget Information

Certificates of Participation



Engineering Progress

June 29, 2018

City of Hattiesburg
Post Office Box 1898
Hattiesburg MS 39403-1898

Attn: Lamar Rutland, P.E.

RE: Infrastructure Rehabilitation Along Arledge Street & Katie Avenue Area
City of Hattiesburg

Dear Mr. Rutland:

During the bid opening for the above referenced project on June 28, 2018 we received no bids.

At this time, we recommend that you re-advertise the project for bid

If you have any questions or we can be of further assistance please do not hesitate to call me at (601) 544-1821.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Shea E. McNease', written over a large, stylized blue oval.

Shea E. McNease, P.E.
President

G:\PROJECTS\Other and Associates\15819\CAD Files\1258 City CAD\1258_Cover_Note.dwg, CVR, 5/14/2018 11:30:32 AM

DETAILED INDEX		
SHEET No.	WRK No.	DESCRIPTION
1	CVR	COVER SHEET, SHEET INDEX, VICINITY MAP, LOCATION MAP & UTILITY LIST
2	GN1	GENERAL NOTES & LEGENDS
3	TOPO1	TOPOGRAPHIC MAP
4	TOPO2	TOPOGRAPHIC MAP CONTINUED
5	PnP1	ARLEDGE STREET STA 10+00 - STA 16+40
6	PnP2	ARLEDGE STREET STA 12+60 - STA 18+40
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8	PLN1	KATIE AVENUE STORM DISCHARGE PLAN
9	TS1	TRAFFIC SIGNAL RELOCATION PLAN
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11	GSD1	GENERAL SITE DETAILS
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15	SSD1	SEWER INSTALLATION DETAILS
16	SSD2	SEWER INSTALLATION DETAILS
17	TWD1	TRACER WIRE DETAILS
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19	PMP2	PAVING, MARKING & SIGNAGE PLAN
20	PMP3	PAVING, MARKING & SIGNAGE PLAN
21	PMP4	PAVING, MARKING & SIGNAGE PLAN
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23	ECP1	STORM WATER POLLUTION PREVENTION PLAN
24	VS1	VEGETATION SCHEDULE & MISC DETAILS
25	TSD-3	PULL BOX AND CONDUIT TRENCHING DETAILS FOR TRAFFIC SIGNAL INSTALLATION
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6101	ECD-1	TYPICAL TEMPORARY EROSION / SEDIMENT CONTROL APPLICATIONS
6102	ECD-2	DETAILS OF SEDIMENT BARRIER APPLICATIONS
6103	ECD-3	DETAILS OF SILT FENCE INSTALLATION
6104	ECD-4	DITCH CHECK STRUCTURES, TYPICAL APPLICATIONS AND DETAILS
6106	ECD-6	DETAILS OF EROSION CONTROL WATTLE DITCH CHECK
6111	ECD-11	TYPICAL APPLICATIONS AND DETAILS FOR INLET CONSTRUCTION
6113	ECD-13	INLET PROTECTION DETAILS OF WATTLES
6115	ECD-15	INLET PROTECTION DETAILS OF SANDBAGS
6121	ECD-21	DETAILS OF EROSION CONTROL SANDBAG DITCH CHECK
6351	TCP-1	TRAFFIC CONTROL PLAN WITH FLAGGER
6358	TCP-8	HIGHWAY SIGN AND BARRICADE DETAILS FOR CONSTRUCTION PROJECTS
6422	CR-2	CURB RAMPS PLACEMENT DETAILS
6424	CR-4	CURB RAMPS DETECTABLE WARNING DETAILS
6501	PI-1	PIPE CULVERT INSTALLATION
6502	PI-2	FLEXIBLE PIPE CULVERT INSTALLATION
6504	JB-1	JUNCTION BOX FOR PIPE CULVERTS
6506	JB-2	JUNCTION BOX TYPE 2 FOR TRAFFIC LOAD
6524	SS-2	STORM SEWER INLET TYPE SS-2
6531	FE-1A	FLARED END SECTION FOR CONCRETE ARCH PIPE
6535	PCU-1	PRECAST UNITS (JUNCTION BOX, SS-3 INLET, & DROP INLET) (30" CONC. ROUND PIPE & UNDER) (36"x23" CONC. ARCH PIPE & UNDER)

CONSTRUCTION PLANS

FOR

INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA

FOR THE

CITY OF HATTIESBURG

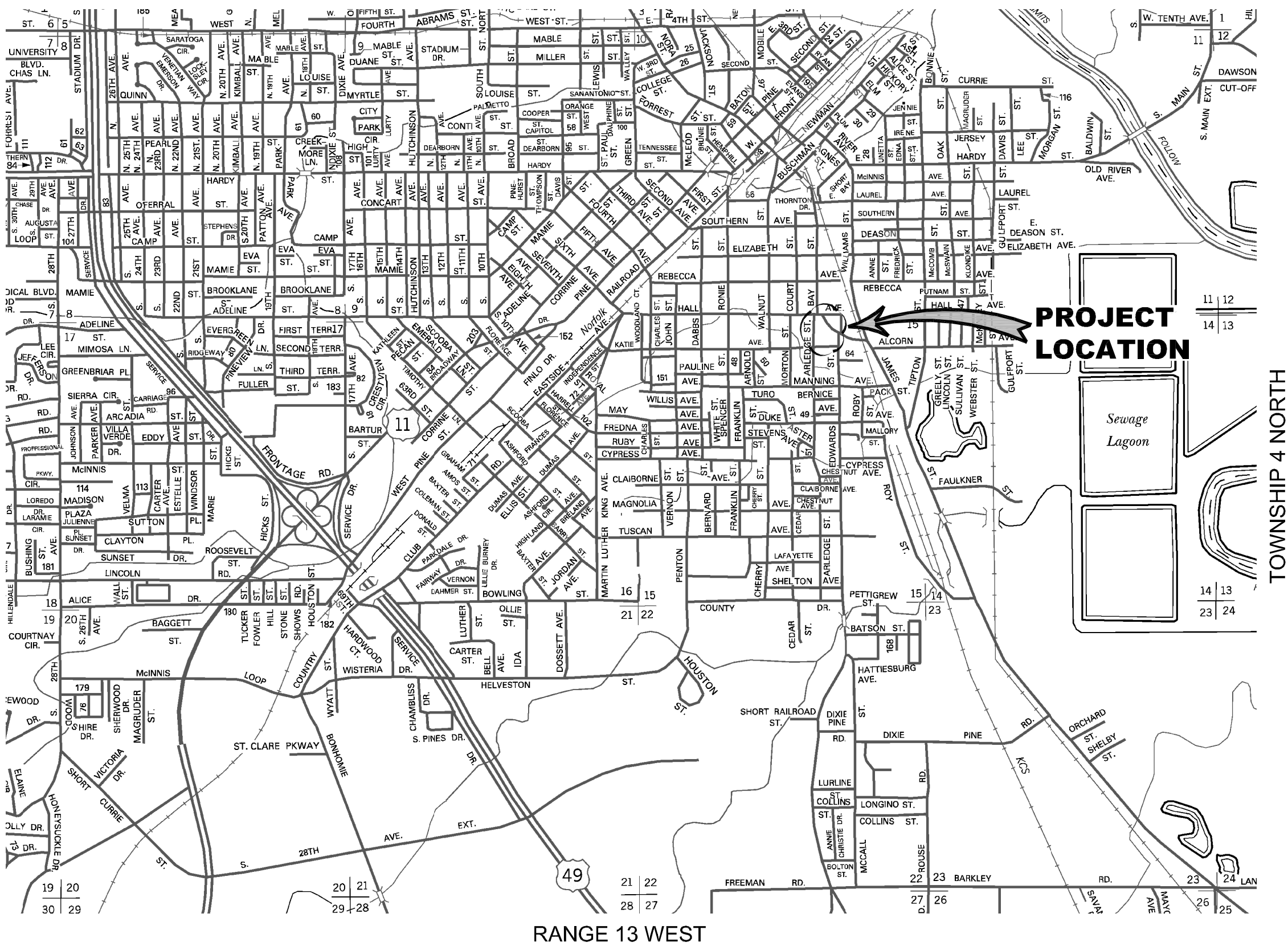
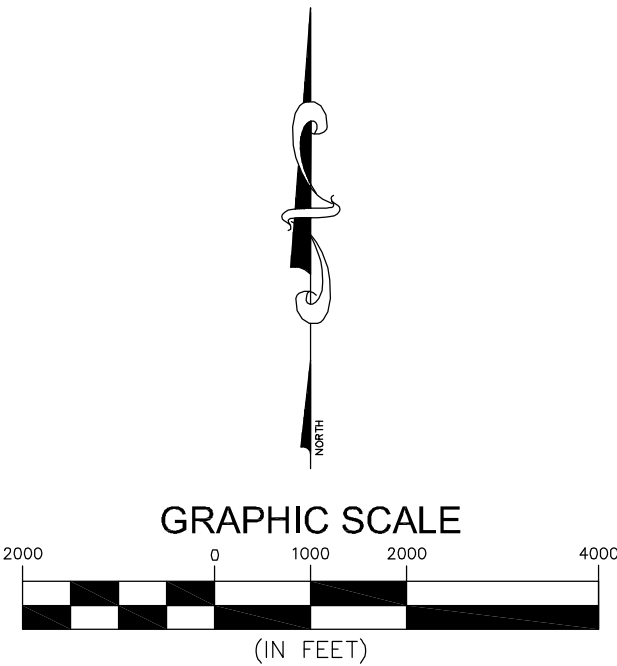
FORREST COUNTY MISSISSIPPI



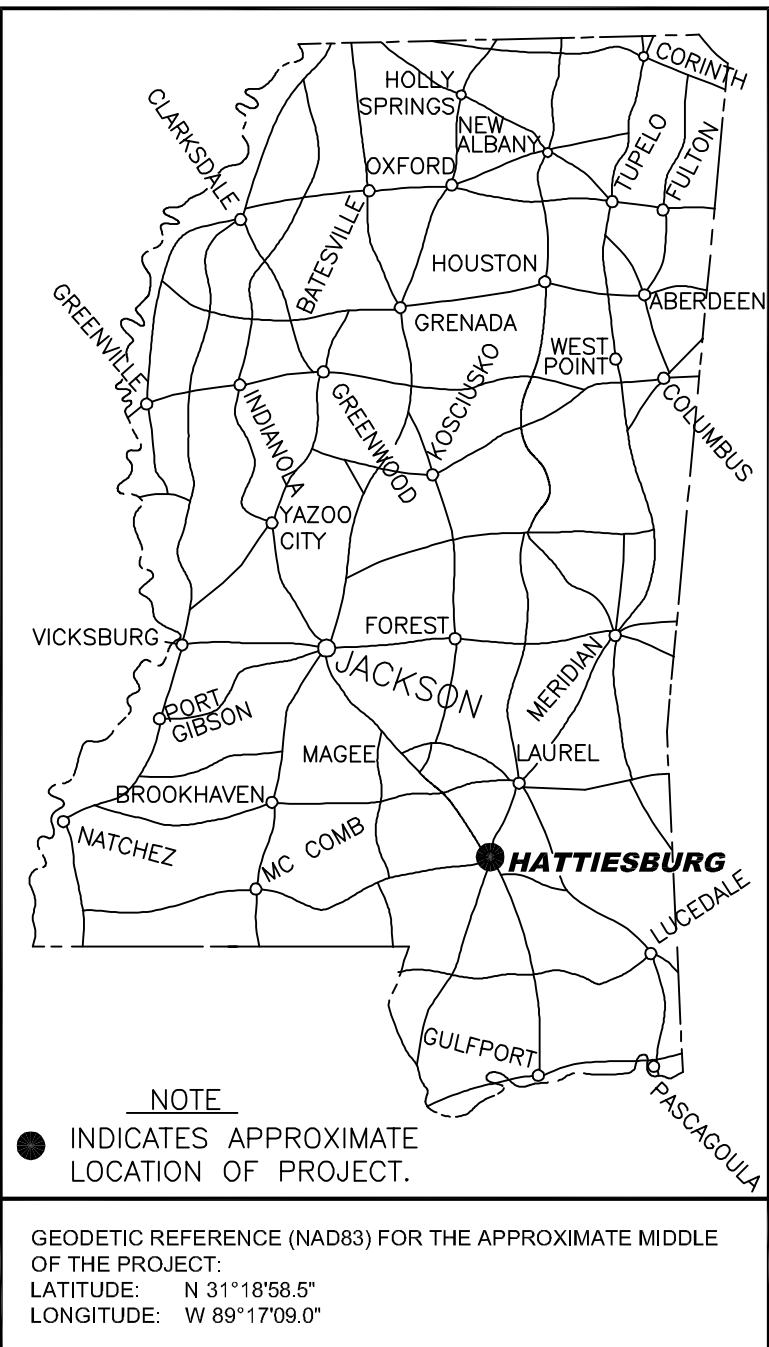
Know what's below.
Call before you dig.

SPECIAL UTILITY NOTES:

- ALL UTILITIES THAT LOCATED DURING THE FIELD DATA COLLECTION ARE SHOWN ON THESE PLANS. ALL CONFLICTS WITH EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION SHALL BE COORDINATED WITH THE UTILITY OWNER. THE ENGINEER AND THE PROJECT OWNER PRIOR TO INSTALLATION OF THE PROPOSED WATER SYSTEM. (NO SEPARATE PAY FOR COORDINATION)
- THE CONTRACTOR SHALL DOCUMENT THE EXISTENCE OF ANY MISSING AND/OR OVERLAPPING UNDERGROUND UTILITIES AND STORM DRAINAGE NOT SHOWN ON THESE CONSTRUCTION DRAWINGS.

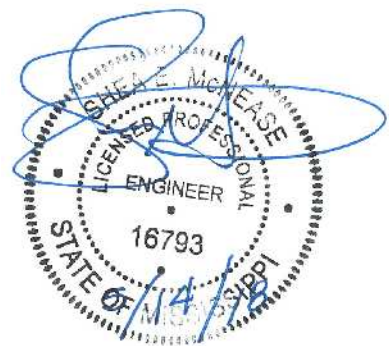


MAY 2018



PUBLIC UTILITIES

CABLE COMCAST 2100 LINCOLN ROAD HATTIESBURG, MS 39402 (601) 264-1188	GAS WILMUT GAS P.O. BOX 1649 HATTIESBURG, MS 39403 (601) 544-6001
POWER MISSISSIPPI POWER, CO. 6356 U.S. HIGHWAY 49 HATTIESBURG, MS 39401 (601) 544-6511	SEWER CITY OF HATTIESBURG WATER & SEWER DEPT. 900 JAMES STREET HATTIESBURG, MS 39403 (601) 545-4530
TELEPHONE AT&T P.O. BOX 1191 HATTIESBURG, MS 39401 (601) 545-6424	WATER CITY OF HATTIESBURG WATER & SEWER DEPT. 900 JAMES STREET HATTIESBURG, MS 39403 (601) 545-4530
TRAFFIC CITY OF HATTIESBURG TRAFFIC DEPT. 125 WALNUT STREET HATTIESBURG, MS 39401 (601) 545-4626	



MAYOR

Toby Barker

COUNCIL PERSONS

Carter Carroll, President
Mary Dryden, Vice President
Jeffrey George
Deborah Denard Delgado
Nicholas Brown

DIRECTOR OF ENGINEERING

Lamar Rutland, PE

PREPARED BY:

sdw
Engineering Progress

301 Second Ave. | Hattiesburg, MS 39401 | (p) 601.544.1821 | (f) 601.544.0501 | sd-w.com

Working No. CVR
Sheet No.
Drawing No.:

NO.	DATE	DESCRIPTION	BY

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES.
2. THE CONTRACTOR SHALL KEEP A SET OF CONSTRUCTION PLANS OF THE PROJECT ON THE JOB SITE SHOWING THE PROJECT SHOWING THE ACCURATE MEASUREMENTS AND ELEVATIONS OF THE "AS-BUILT" SYSTEM. THIS DATA WILL BE COLLECTED AND PUT ON THE DRAWINGS DAILY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE ENTIRE PROJECT.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CITY OF HATTIESBURG AND/OR FORREST COUNTY FEES AND PERMITS ASSOCIATED WITH CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND THE LOCATION OF THE PROJECT. CONTROL COORDINATE SYSTEM AND ELEVATION CONTROL ARE SHOWN ON THE PLAN SHEETS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN SUB-SURFACE SOIL INVESTIGATIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL EXISTING TOPOGRAPHIC DATA AND ALL OTHER SITE CONDITIONS PRIOR TO THE BEGINNING OF CONSTRUCTION, ANY CONFLICT SHALL BE COORDINATED WITH THE CONTRACTOR, OWNER AND ENGINEER/ARCHITECT. THE ENGINEER CANNOT AND DOES NOT WARRANT THAT THIS INFORMATION IS COMPLETE OR ACCURATE.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UTILITIES WITHIN THE WORK AREA.
9. ALL UNDERGROUND UTILITIES, FOR THE ENTIRE PROJECT, SHALL BE LOCATED BY THE CONTRACTOR AND UTILITY OWNERS PRIOR TO THE CONSTRUCTION OF THE PROJECT. ANY CONFLICTS SHALL BE COORDINATED BETWEEN CONTRACTOR, UTILITY OWNER AND ENGINEER.
10. ALL CULVERT CROSS DRAINS AND SIDE DRAINS SHALL BE PROTECTED. REMOVAL AND REPLACEMENT, IF REQUIRED, SHALL BE PAID AS NOTED.
- 10.1. ANY EXISTING CROSS DRAINS SHOWN TO BE REMOVED AND REPLACED SHALL BE REPLACED WITH NEW RCP AND SHALL BE INSTALLED AT THE SAME GRADE AS THE EXISTING CROSS DRAIN, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE GRADES OF THE REPLACED PIPE ARE CORRECT AND TO INSURE PROPER FLOW.
- 10.2. ANY EXISTING SIDE DRAINS THAT CONFLICT WITH CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH NEW CORRUGATED HDPE PIPE AND SHALL BE INSTALLED AT THE SAME GRADE AS THE EXISTING SIDE DRAIN, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE GRADES OF THE REPLACED PIPE ARE CORRECT AND TO INSURE PROPER FLOW.
- 10.3. IF THE EXISTING DRAIN PIPES ARE CONNECTED TO INLETS, HEADWALLS OR ANY OTHER DRAINAGE STRUCTURES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECONNECTION TO THOSE STRUCTURES, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER. CONCRETE PIPE COLLARS SHALL BE USED AS WARRANTED, AS APPROVED BY THE ENGINEER. SOME INLETS ARE NOTED FOR REPLACEMENT ON THE PLANS AND SHALL BE REPLACED AS DETAILED.
- 10.4. ANY EXISTING DRAINS THAT SHOWN TO BE REMOVED AND RESET SHALL BE REMOVED, SALVAGED AND RESET PER NEW PIPE INSTALLATION DETAILS CONTAINED HEREIN. ANY DAMAGE TO THE SALVAGED PIPE SHALL BE REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
- 10.5. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING STORM DRAINAGE STRUCTURES DURING THE CONSTRUCTION PROCESS. ANY DAMAGE, OTHER THAN THAT NOTED ABOVE, SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 10.6. ABSOLUTELY NO NEW CORRUGATED METAL PIPE SHALL BE INSTALLED ON THIS PROJECT.
11. THE COST OF CLEARING AND GRUBBING/REMOVAL AND DISPOSAL OF CLEARING AND GRUBBING MATERIAL SHALL BE PAID LUMP SUM, UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE FAMILIAR WITH THE EXTENT OF CLEARING REQUIRED PRIOR TO BIDDING. OFFSITE DISPOSAL AREAS ARE TO BE FURNISHED BY THE CONTRACTOR.
12. PROPER MAINTENANCE OF STREETS, INCLUDING DUST CONTROL, SHALL BE STRICTLY ADHERED TO.
13. MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
14. THE CONTRACTOR SHALL PROVIDE PROPER TRAFFIC CONTROL SIGNS AND FLAGGERS TO MAINTAIN ONE LANE TRAFFIC DURING CONSTRUCTION, WHERE LANE CLOSURES ARE NEEDED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE SHEET NO. 6250 FOR TYPICAL LANE CLOSURE DETAILS. ANY ROAD CLOSURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.
15. ALL DISTURBED UNPAVED AREAS SHALL BE RESTORED AS FOLLOWS:
 - 15.1. GRASSED AREAS SHALL RECEIVE SOLID SOIL WHICH SHALL BE FERTILIZED AND WATERED AS PER THE VEGETATION SCHEDULE. PERMANENT ESTABLISHMENT OF GRASS GROWTH SHALL BE A REQUIREMENT BEFORE FINAL COMPLETION.
 - 15.2. ALL LANDSCAPED AREAS SHALL BE RESTORED IN KIND AND SHALL INCLUDE TOP SOIL (4" DEPTH MIN), WATERING, FERTILIZER AND MULCH, IF PRESENT (IN KIND), AS PER THE VEGETATION SCHEDULE. CONTRACTOR SHALL MATCH SPECIES AND SIZE AS CLOSE AS POSSIBLE. SUBSTITUTIONS SHALL BE ALLOWED ONLY BY WRITTEN APPROVAL FROM THE ENGINEER AND COORDINATION WITH THE AFFECTED RESIDENT.
16. ALL EXISTING MAILBOXES, STREET SIGNS, FENCES, AND OTHER STRUCTURES LOCATED WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED AND RESET AS DICTATED BY CONSTRUCTION ACTIVITIES. (NO SEPARATE PAY, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER). EXISTING FLOWER BEDS, GARDENS, SHRUBS, ETC. WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED AND RESET AS DICTATED BY CONSTRUCTION ACTIVITIES. (NO SEPARATE PAY, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER). ALL ITEMS (INCLUDING REMOVAL OF OBSTRUCTIONS, REMOVED AND RESET AND/OR REPLACEMENT OF STORM DRAIN STRUCTURES, ETC.) FOR WHICH NO PAY ITEM IS LISTED, SHALL BE INCLUDED IN THE COST OF THE PIPE LAYING OPERATION. (NO SEPARATE PAY).
17. PAVED ROADS SHALL BE OPEN CUT AND REPAIRED AS DETAILED. CASING SHALL BE USED ONLY WHERE NOTED ON THE PLANS.
18. ALL GRAVEL ROADS AND GRAVEL DRIVEWAYS SHALL BE OPEN CUT WITHOUT CASING, UNLESS OTHERWISE NOTED, AND REPLACED IN KIND.
19. ALL PAVED DRIVEWAYS SHALL BE OPEN CUT AND REPAIRED IN KIND, UNLESS OTHERWISE NOTED.
20. CONTRACTOR SHALL PROVIDE ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ALL DRIVEWAY CUTS AND EXCAVATION WITH THE OWNERS OF SAID DRIVEWAYS.
21. ANY DAMAGE TO PAVED ROADS OR DRIVEWAYS, WHICH ARE OUTSIDE OF THE PROJECT LIMITS, SHALL BE REPAIRED IN KIND, AT THE CONTRACTOR'S EXPENSE.
22. ALL TRENCHES IN PAVED AREAS SHALL BE REPAIRED AS DETAILED. CRUSHED AGGREGATE SHALL ALSO BE INSTALLED AND USED FOR A TEMPORARY SURFACE UNTIL SUCH TIME THAT THE OWNER DECIDES TO ALLOW INSTALLATION OF PAVEMENT (SEE DETAILS). ALL CRUSHED AGGREGATE SHALL BE SIZE #10. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF EXISTING PAVEMENT AND OR CRUSHED AGGREGATE PRIOR TO PLACEMENT OF PAVEMENT IN PATCHED AREAS TO MAKE A SMOOTH JOINT WITH THE EXISTING PAVEMENT. SAW CUT TO FULL DEPTH OF EXISTING PAVEMENT SHALL BE REQUIRED ON ALL PAVEMENT REPAIR, UNLESS OTHERWISE DIRECTED. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SURFACE IN AN ACCEPTABLE CONDITION UNTIL SUCH TIME AS FINAL PAVEMENT IS INSTALLED.
23. ALL ROAD BORES SHALL BE IN ACCORDANCE TO THE DETAILS.
24. ALL SELECT FILL MATERIAL SHALL MEET THE SPECIFICATIONS FOR CLASS 9, GROUP C AND MODIFIED TO CONSIST OF A PLASTICITY INDEX (PI) BETWEEN 5 AND 15. THE SELECT FILL MATERIAL SHALL BE INSTALLED AT THE DIRECTION OF THE ENGINEER OR HIS REPRESENTATIVE.
25. PRIOR TO THE BEGINNING OF ANY EXCAVATION, ALL EXISTING PAVEMENT SHALL BE SCORED OR SAW CUT TO A DEPTH SUCH THAT A STRAIGHT AND UNIFORM VERTICAL EDGE IS ESTABLISHED PRIOR TO REMOVAL OF SAID PAVEMENT FROM THE PROJECT. IF VERTICAL EDGE IS DISTURBED, THEN A SECOND CUT SHALL BE REQUIRED PRIOR TO ASPHALT OR CONCRETE PATCHING. ALL ASPHALT OR CONCRETE SHALL BE REMOVED FROM THE PROJECT SITE PRIOR TO EXCAVATION PROCEDURES. (NO SEPARATE PAY FOR SAW CUTTING, DEBRIS REMOVAL, PAVEMENT REMOVAL AND DISPOSAL)
26. WORK FOR THIS PROJECT REQUIRES EXCAVATION IN THE IMMEDIATE VICINITY OF TRAFFIC AND ADJACENT PROPERTIES. THEREFORE, THE RISK OF A FAILURE OCCURRING DURING EXCAVATION REQUIRES THAT EXTREME CAUTION BE EXERCISED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING WHAT BRACING, SHORING OR GROUND SUPPORT SYSTEM THAT IS DEEMED NECESSARY TO PREVENT A FAILURE AND PROTECT THE PERSONS WORKING NEAR THE EXCAVATION, THE PUBLIC THAT MAY BE ABOVE THE EXCAVATION, OR ANY STRUCTURE ADJACENT TO THE EXCAVATION. ALL COSTS FOR ANY PROTECTIVE MEASURES INCLUDING THE MATERIALS AND LABOR FOR DESIGNING, DRAWING AND CONSTRUCTING THE FACILITY SHALL BE INCLUDED IN THE BID PRICE FOR CONTRACT ITEMS.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING BRACING, SHORING OR ANY GROUND SUPPORT SYSTEM REQUIRED TO PREVENT A FAILURE FROM OCCURRING DURING EXCAVATION. ALL COST FOR ANY PROTECTIVE MEASURES, INCLUDING THE MATERIALS AND LABOR FOR DESIGNING AND CONSTRUCTING THE SUPPORT SYSTEM, SHALL BE INCLUDED IN THE BID PRICE FOR CONTRACT ITEMS.
28. THE EROSION CONTROL DEVICES SHALL BE REQUIRED AS DIRECTED BY THE ENGINEER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT SILT DOES NOT LEAVE THE CONSTRUCTION SITE OR CONTAMINATE WATERS OF THE U.S. DURING CONSTRUCTION. THE CONTRACTOR SHALL MAINTAIN THE PLAN DURING CONSTRUCTION UNTIL PERMANENT GRASS IS ESTABLISHED OR THE DISTURBED SURFACED IS PAVED.
29. THE CONTRACTOR SHALL ADHERE TO ALL MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS FOR EROSION CONTROL AND ANY OTHER PERTINENT GUIDELINES.
30. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIAL TESTING BY AN INDEPENDENT LABORATORY APPROVED BY THE ENGINEER AND/OR OWNER.
31. MATERIAL SUBMITTALS SHALL BE MADE TO OWNER THROUGH THE ENGINEER PRIOR TO USE FOR APPROVAL.
32. ALL WATER AND SEWER SYSTEMS INSTALLED ON THIS PROJECT SHALL REQUIRE A TRACER WIRE SYSTEM.
33. THE CONTRACTOR SHALL HAVE A COMPETENT AND EXPERIENCED SUPERINTENDENT ON SITE AT ALL TIMES. THE SUPERINTENDENT SHALL NOT OPERATE EXCAVATION WHILE ON THE PROJECT SITE. WORK ON THE PROJECT SHALL STOP IF THE ASSIGNED PROJECT SUPERINTENDENT IS NOT ON SITE.
34. MANHOLE LIDS, FIRE HYDRANTS & VALVES NOTED FOR REMOVAL IN THESE PLANS, SHALL BE SALVAGED FOR THE OWNER. ALL ITEMS SALVAGED ITEMS SHALL BE CLEANED BY POWER WASHING, SAID ITEMS SHALL BE STACKED AND SECURED ON PALLETS, SAID ITEMS SHALL BECOME THE PROPERTY OF THE OWNER AND DELIVERED TO A SITE DETERMINED BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF SAID ITEMS PRIOR TO DELIVERY TO THE OWNER AND FOR REPLACEMENT IN KIND FOR ANY MISSING ITEMS. (NO SEPARATE PAY)
35. ALL MATERIALS FOR THE PROJECT SHALL BE A PRODUCT OF THE U.S.A.

SEWER NOTES:

- NO PIPE SHALL BE LAID IN THE PRESENCE OF WATER, NO MANHOLE OR WET WELL SHALL BE SET IN THE PRESENCE OF WATER.
- WELL POINTS, IF REQUIRED, SHALL BE INCLUDED IN THE COST OF THE PIPING LAYING OPERATION.
- WHERE THE WATER MAIN IS WITHIN 10 FEET OF A SEWER MAIN HORIZONTALLY, THE BOTTOM OF THE WATER MAIN SHALL BE AT LEAST 18" FROM THE TOP OF THE SEWER MAIN, UNLESS OTHERWISE NOTED.
- THE FINISHED ELEVATION OF ALL MANHOLE TOPS FOR MANHOLES TO BE CONSTRUCTED IN PAVED AREAS SHALL BE AT EXISTING PAVEMENT ELEVATION OR AS DIRECTED BY THE ENGINEER. MANHOLE AND PIPE ELEVATIONS SHALL BE TAKEN FROM CUT SHEETS FURNISHED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION. PAYMENT FOR SEWER WILL BE BASED ENTIRELY ON THE ENGINEER APPROVED CUT SHEETS.
- MANHOLES SHALL HAVE 20 MIL. COAL TAR EPOXY COATING ON THE INSIDE, UNLESS OTHERWISE NOTED. DUCTILE IRON PIPE SHALL BE LINED AS NOTED IN THE SPECIFICATIONS.
- ALL SEWER MAINS, SERVICE LINES AND FITTINGS SHALL BE SDR 26 PVC AND OF THE SIZE AS NOTED IN THESE PLANS, UNLESS OTHERWISE NOTED. ALL FITTINGS REQUIRED FOR DUCTILE IRON OR PVC PIPE SHALL BE INCLUDED IN THE APPROPRIATE BID ITEM FOR THE PIPE AND AT NO ADDITIONAL COST TO THE PROJECT EXCEPT SERVICE TEE'S AND CLEANOUTS. CLEANOUTS SHALL INCLUDE TEE, SERVICE CAP, TRAFFIC COVER IF NEEDED, AND ANY PIPE LENGTH TO BRING CLEANOUT TO SURFACE GRADE. ALL CLEANOUTS LOCATED IN PAVED AREAS SHALL BE INSTALLED WITH A TRAFFIC LOAD RATED FRAME AND COVER SET FLUSH WITH PAVEMENT. (NO SEPARATE PAY)
- ALL DUCTILE IRON PIPE SHALL BE LOCKING JOINT TYPE AND OF THE SIZE AS NOTED ON THESE PLANS.
- INFILTRATION/EXFILTRATION ON NEWLY INSTALLED SEWER MAIN SHALL BE REQUIRED AS DIRECTED. MANHOLE TESTS SHALL BE REQUIRED ON ALL SEWER MAIN INSTALLED. CONTRACTOR SHALL BE REQUIRED TO PULL A MANHOLE FOR TESTING PURPOSES IN ALL SEWER LINES INSTALLED ON THE PROJECT PRIOR TO FINAL ACCEPTANCE. MANHOLE TEST SHALL BE PERFORMED IN LIVE OR BYPASS PUMPED SEWER AS NECESSARY AT THE DISCRETION OF THE ENGINEER
- ALL MANHOLES SHALL BE 48" IN DIAMETER, WITH ECCENTRIC TOP CONE SECTIONS, UNLESS OTHERWISE NOTED. (SEE PLAN AND PROFILE SHEETS FOR PROPER SIZING)
- ALL SINGLE DROPS FOR SEWER PIPE 8" AND UNDER IN DIAMETER SHALL BE PLACED INSIDE THE MANHOLE AS DETAILED. ALL MULTIPLE DROPS OR DROPS FOR SEWER PIPE OVER 8" IN DIAMETER SHALL BE PLACED OUTSIDE OF THE MANHOLE AS DETAILED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL ADHERE TO ALL MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS FOR SANITARY SEWER CONSTRUCTION CONTROL AND ANY OTHER PERTINENT GUIDELINES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR BY-PASS PUMPING AS REQUIRED BY THE ENGINEER. (NO SEPARATE PAY)
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECONNECTING ANY SEWER SERVICE LINES WHICH ARE CUT AND/OR REMOVED DURING THIS PROJECT.
- ALL SERVICE CONNECTIONS SHOWN ON THE PLAN SHEETS SHALL BE CONNECTED TO THE PROPOSED SEWER LINE, UNLESS NOTED OTHERWISE OR DIRECTED BY THE ENGINEER.
- FLEXIBLE COUPLINGS SHALL BE USED ONLY WITH ENGINEER'S APPROVAL.
- THE CONTRACTOR SHALL VERIFY THE LOCATION AND FLOWLINE ELEVATION OF THE SERVICE CONNECTION POINTS AT EACH STRUCTURE PRIOR TO CONSTRUCTION. LENGTH OF SERVICE CONNECTIONS MAY VARY FROM WHAT IS SHOWN DUE TO LOCATION OF SERVICE CONNECTION POINT.
- THE MINIMUM GRADE FOR SEWER SERVICE CONNECTIONS SHALL BE 0.50% SERVICE CONNECTION TO MAIN, TEE'S, REDUCERS, CONNECTIONS TO EXISTING SERVICE AND ANY OTHER FITTINGS NECESSARY TO MAKE THE CONNECTION SHALL BE PAID PER EACH CONNECTION. SERVICE LINE SHALL BE PAID BY LINEAR FOOT.
- CLEANOUTS SHALL BE PAID PER EACH. CLEANOUTS FOR SANITARY SEWER SERVICES SHALL BE PLACED AT THE RIGHT OF WAY LINE (AS DETAILED), AT EVERY TURN AND CHANGE IN GRADE, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.
- SERVICE CONNECTIONS NOTED ON THESE PLANS ARE LOCATED BASED ON FIELD EVIDENCE, INSPECTION REPORTS AND OTHER INFORMATION THAT IS AVAILABLE TO THE ENGINEER. THE LOCATION OF ANY SERVICE NOTED AS "FIELD VERIFY" IS QUESTIONABLE AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION OF THE MAIN LINE.
- ALL SERVICE CONNECTIONS (FOR ALL UTILITY TYPES) WHICH ARE TEMPORARILY DISCONNECTED DUE TO CONSTRUCTION REQUIREMENTS, DAMAGED OR OTHERWISE DISCONNECTED, SHALL BE REPAIRED IN KIND AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE DIRECTED. (NO SEPARATE PAY). SERVICE INTERRUPTIONS SHALL BE COORDINATED WITH THE UTILITY OWNER AND THE AFFECTED STRUCTURE OWNER. EXCEPTION 1: WATER SERVICE CONNECTIONS WHICH ARE DEGRADED BEYOND REPAIR, LEAKING, BROKEN, ETC. PRIOR TO CONSTRUCTION, SHALL BE DOCUMENTED, REPORTED TO THE ENGINEER, REPAIRED AND PAID AS OUTLINED IN THE BID DISPOSAL (SIZE TO MATCH EXISTING). EXCEPTION 2: ANY OTHER SERVICE CONNECTIONS, EXCEPT WATER & SEWER, WHICH ARE DEGRADED BEYOND REPAIR, LEAKING, BROKEN, ETC. PRIOR TO CONSTRUCTION, SHALL BE DOCUMENTED, REPORTED TO THE ENGINEER AND REPORTED TO THE UTILITY OWNER.
- THE CONTRACTOR SHALL NOTE MINIMUM GRADES FOR VARIOUS LOCATIONS OF PROPOSED SEWER LINES WITHIN THE PROJECT. THE CONTRACTOR SHALL HAVE THE EXPERTISE TO INSTALL PIPING ON THESE GRADES. ANY INSTALLED PIPE FOUND TO HAVE MORE THAN 1/4" OF STANDING WATER SHALL BE REMOVED AND RE-LAID AT THE CONTRACTOR'S EXPENSE.
- ALL BEDDING MATERIAL FOR ALL PIPE SHALL BE ABSORBED IN THE PRICE OF THE PIPE LAYING OPERATION.
- ALL MANHOLES LOCATED IN FLOOD ZONES SHALL HAVE BOLTED LIDS AND FRAMES AS SHOWN ON PLANS.

WATER NOTES

3. ALL WORK ITEMS FOR WHICH NO PAY ITEMS ARE ESTABLISHED SHALL BE ABSORBED IN THE COST OF THE PIPE LAYING OPERATION.
2. NO PIPE SHALL BE LAID IN THE PRESENCE OF WATER.
3. WHERE THE WATER MAIN IS WITHIN 10 FEET OF A SEWER MAIN HORIZONTALLY, THE BOTTOM OF THE WATER MAIN SHALL BE AT LEAST 18" FROM THE TOP OF THE SEWER MAIN, UNLESS OTHERWISE NOTED.
4. ALL STEEL CASINGS SHALL BE 0.230" WALL THICKNESS, UNLESS OTHERWISE NOTED, AND OF THE SIZE AS NOTED ON THESE PLANS.
5. ALL ROAD BORES SHALL BE IN ACCORDANCE TO THE DETAILS.
6. ALL WATER PIPE SHALL BE DUCTILE IRON, CLASS 350, AND/OR HOPE DR 11, 200 PSI, AS NOTED ON PLANS.
7. ALL FITTINGS AND VALVES SHALL BE DUCTILE IRON WITH CONCRETE THRUST BLOCK AT ALL BENDS AND SECURED TOGETHER WITH MEGA LUG CONNECTIONS. ALL TEES AND VALVES SHALL BE SECURED TOGETHER AS ONE UNIT. VALVES AND FIRE HYDRANTS SHALL BE SECURED TOGETHER BUT SEPARATE FROM THE TEE AND OTHER VALVES. ALL FITTINGS, EXCEPT VALVES SHALL BE ABSORBED ITEMS.
8. ALL BENDS SHOWN IN THE PROPOSED WATERLINE SHALL BE ACCOMPLISHED THROUGH THE USE OF THE REQUIRED FITTINGS (22.5', 30', 45"...). SINGLE 90° BEND FITTINGS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY NOTED ON THE PLANS AND/OR APPROVED BY THE ENGINEER. 90° BENDS SHALL BE ACCOMPLISHED BY MULTIPLE SMALLER BEND FITTINGS. BENDS SHOWN ON THE PLAN SHEETS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO BIDDING AND CONSTRUCTION. ONE MAJOR BENDS ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FITTINGS NECESSARY TO INSTALL THE PROPOSED WATER LINE. (NO SEPARATE PAY) TEES AND CROSSES SHALL BE PAID FOR UNDER THE CONNECTION ITEM.
9. ALL PROPOSED FIRE HYDRANTS SHOWN FOR INSTALLATION ON THE PLANS SHEETS SHALL BE 3-WAY HYDRANTS AS DETAILED. ALL HYDRANTS SHALL BE SAFETY YELLOW IN COLOR FROM THE MANUFACTURER. ACCEPTABLE FIRE HYDRANTS SHALL BE M & H, MUELLER AND AMERICAN DARLING.
10. FULL LENGTH PIPE SECTIONS ARE REQUIRED BEFORE AND AFTER ALL FITTINGS.
11. ALL VALVES NOTED ON THESE PLANS SHALL BE GATE VALVES.
12. ALL EXISTING WATER LINES NOTED FOR ABANDONMENT ON THIS PROJECT SHALL BE COMPLETELY DISCONNECTED FROM THE EXISTING SYSTEM AND CAPPED.
13. PRESSURE TESTS WILL BE REQUIRED ON ALL WATER MAIN INSTALLED.
14. ALL NEW CONSTRUCTION TO BE FLUSHED WITH CLOSE SUPERVISION OF THE SYSTEM OPERATOR.
15. ALL BACT-SAMPLES SHALL BE TAKEN BY THE SYSTEM OPERATOR OR HIS REPRESENTATIVES. ANY AND ALL SAMPLING FEES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
16. WATER SERVICE NOTES:
 - 16.1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING WATER METERS ALONG ALL STREETS WITHIN THE PROJECT AREA WHICH ARE NOTED FOR WATER MAIN CONSTRUCTION. SOME METERS MAY NOT HAVE BEEN LOCATED DURING THE DESIGN PHASE OF THIS PROJECT DUE TO FIELD CONDITIONS. HOWEVER, ALL METERS WITHIN THE PROJECT AREA SHALL BE RECONNECTED.
 - 16.2. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECONNECTING ANY SERVICE, WHICH IS PRESENTLY CONNECTED TO AN EXISTING WATER MAIN THAT IS NOTED FOR ABANDONMENT ON THIS PROJECT, TO AN ADJACENT PROPOSED WATER LINE (SEE PLAN SHEETS).
 - 16.3. A CRITERIA FOR THIS PROJECT IS TO ELIMINATE UNDER SIZE (UNDER 4" DIAMETER) WATER MAINS WITHIN THE PROJECT AREA. WATER SERVICES SHALL BE RECONNECTED TO AN ADJACENT EXISTING LARGE WATER MAIN (4" DIAMETER AND OVER).
 - 16.4. SERVICE CONNECTIONS SHALL INCLUDE (BUT MAY NOT BE LIMITED TO) TAPPING SADDLE, CORPORATION STOP, SERVICE LINE (LENGTH AS REQUIRED) OF MATCHING SIZE AND/OR ALL NECESSARY FITTINGS. SERVICE RECONNECTIONS SHALL BE PAID PER EACH AS OUTLINED IN THE BID DOCUMENTS. SERVICE CONNECTION SHALL INCLUDE CONNECTION TO THE MAIN AND THE CONNECTION TO NEW OR EXISTING WATER METERS.
 - 16.5. NEW SERVICE CONNECTIONS SHALL BE INSTALLED AS ONE CONTINUOUS PIPE FROM THE WATER MAIN TO THE METER. SPLICES SHALL NOT BE ALLOWED. THE ENTIRE SERVICE BETWEEN THE METER AND THE NEW MAIN SHALL BE REPLACED. SERVICE LINE BORES SHALL BE PAID SEPARATELY.
 - 16.6. METERS SHALL ONLY BE INSTALLED WHERE NOTED ON THE PLANS AND SHALL BE PAID SEPARATELY. METERS SHALL MATCH SERVICE LINE SIZE AND BE OF BRAND/TYPE SPECIFIED BY THE OWNER.
 - 16.7. THE CONTRACTOR SHALL TAKE NOTE THAT THERE ARE SERVICES SHOWN ON THE PLANS TO BE DISCONNECTED FROM EXISTING WATER MAINS AND RECONNECTED TO AN EXISTING WATER MAIN. THIS SERVICE CONNECTION ITEM SHALL BE PAID UNDER "RECONNECTION OF WATER SERVICE" AND SHALL INCLUDE TAPPING SADDLE, CORPORATION STOP, SERVICE LINE (LENGTH AS REQUIRED) OF MATCHING SIZE AND/OR ALL NECESSARY FITTINGS. SERVICE CONNECTION SHALL INCLUDE CONNECTION TO THE EXISTING MAIN AND THE CONNECTION TO THE EXISTING METER. THE ENTIRE SERVICE BETWEEN THE METER AND THE EXISTING MAIN SHALL BE REPLACED. SERVICE LINE BORES SHALL BE PAID SEPARATELY.
 - 16.8. ALL NEW WATER METERS SHALL BE BADGER RADIO READ. ALL SERVICE FITTINGS SHALL BE FORD BRAND, ONLY.

SPECIAL SEWER ABANDONMENT / REMOVAL NOTES:

1. ALL EXISTING MANHOLES NOTED TO BE REMOVED SHALL BE REMOVED ENTIRELY. REMOVED ITEMS SHALL BE DISPOSED OF APPROPRIATELY.
2. ALL EXISTING MANHOLES NOTED TO BE ABANDONED, SHALL BE PAID FOR PER EACH AND SHALL BE MODIFIED AS FOLLOWS:
 - 2.1. REMOVE AND DISPOSE OF SANITARY WASTE.
 - 2.2. REMOVE COVER, FRAME AND THE TOP 36" OF MANHOLE STRUCTURE. DISPOSE OF REMOVED OBJECTS APPROPRIATELY.
 - 2.3. FILL THE MANHOLE WITH SAND.
 - 2.4. CAP THE MANHOLE WITH 3000 PSI, NON-REINFORCED CONCRETE (6" DEPTH).
 - 2.5. BACKFILL WITH NATIVE SOIL MATERIAL AND/OR FILL MATERIAL (CL B9) AND COMPACT. GRADE TO DRAIN AS REQUIRED. EXPOSED SURFACE AREA OR REPAIR PAVEMENT AREAS.
3. ALL EXISTING SEWER PIPES NOTED TO BE REMOVED, SHALL BE REMOVED ENTIRELY. (NO SEPARATE PAY)
4. ALL EXISTING SEWER PIPES NOTED TO BE ABANDONED SHALL BE PAID FOR BY LINEAR FOOT AND SHALL BE MODIFIED AS FOLLOWS:
 - 4.1. REMOVE AND DISPOSE OF SANITARY WASTE.
 - 4.2. FILL THE PIPE WITH FLOWABLE FILL.
 - 4.3. PLUG ENDS.
5. WHERE ABANDONED SEWER PIPES AND/OR MANHOLES CONFLICT WITH THE NEW CONSTRUCTION, THE EXISTING PIPE OR MANHOLE SHALL BE REMOVED, UNLESS NOTED OTHERWISE OR DIRECTED BY THE ENGINEER.

ABBREVIATION LEGEND:

A/C	— AIR CONDITIONER	HDPE	— HIGH DENSITY POLYETHYLENE	R	— RADIUS
&	— AND	HYD	— HYDRANT	RCAP	— REINFORCED CONCRETE ARCHED PIPE
APPURT	— APPURTENANCES	INCL	— INCLUDING	RCP	— REINFORCED CONCRETE PIPE
ARCH	— ARCHITECTURAL	INV	— INVERT	REQ'D	— REQUIRED
ASPLT	— ASPHALT	IRR	— IRRIGATION	REINF	— REINFORCED
AVE	— AVENUE	JNT	— JOINT	ROW	— RIGHT OF WAY
BLDG	— BUILDING	LF	— LINEAR FEET	S	— SOUTH
CL	— CENTERLINE	LVM	— LOOSE VOLUME MEASURE	SSCO	— SAN SWR CLEAN OUT
CL	— CLASS	LBS	— POUNDS	SAN	— SANITARY
CONC	— CONCRETE	MAT'L	— MATERIAL	SCH	— SCHEDULE
CPP	— CORRUGATED PLASTIC PIPE	MAX	— MAXIMUM	SE	— SOUTHEAST
DIA	— DIAMETER	MH	— MANHOLE	SVC	— SERVICE
DRV	— DRIVE	MIN	— MINIMUM	SDR	— STANDARD DIAMETER RATIO
DI	— DUCTILE IRON	MM	— MILLIMETER	SPECS	— SPECIFICATIONS
E	— EAST	MOD	— MODIFIED	SQ	— SQUARE
ETC	— ETCETERA	N	— NORTH	ST	— STREET
EXIST	— EXISTING	NE	— NORTHEAST	STA	— STATION
EXP	— EXPANSION	NW	— NORTHWEST	SW	— SOUTHWEST
FT	— FEET	NIC	— NOT IN CONTRACT	SWR	— SEWER
FFE	— FINISH FLOOR ELEVATION	No.	— NUMBER	SY	— SQUARE YARD
FL	— FLOW LINE	OC	— ON CENTER	TYP	— TYPICAL
GP	— GROUP	PVMNT	— PAVEMENT	W	— WEST
GRVL	— GRAVEL	PRKG	— PARKING	W/	— WITH
GALV	— GALVANIZED	PIV	— POST INDICATOR VALVE	W/O	— WITHOUT
		PSI	— POUNDS PER SQUARE INCH		
		PVC	— POLYVINYL CHLORIDE PIPE		
		PL	— PROPERTY LINE		

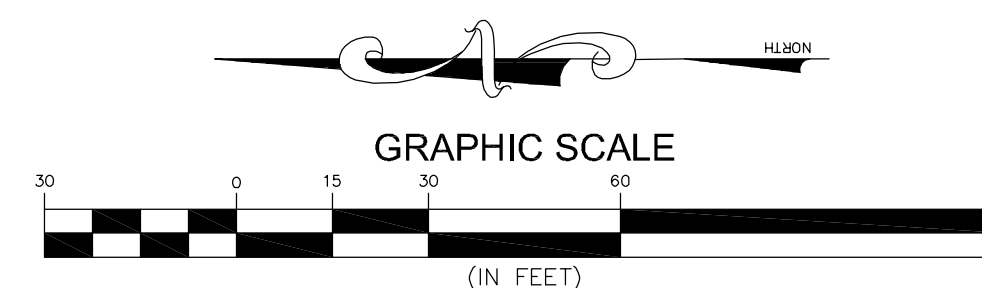
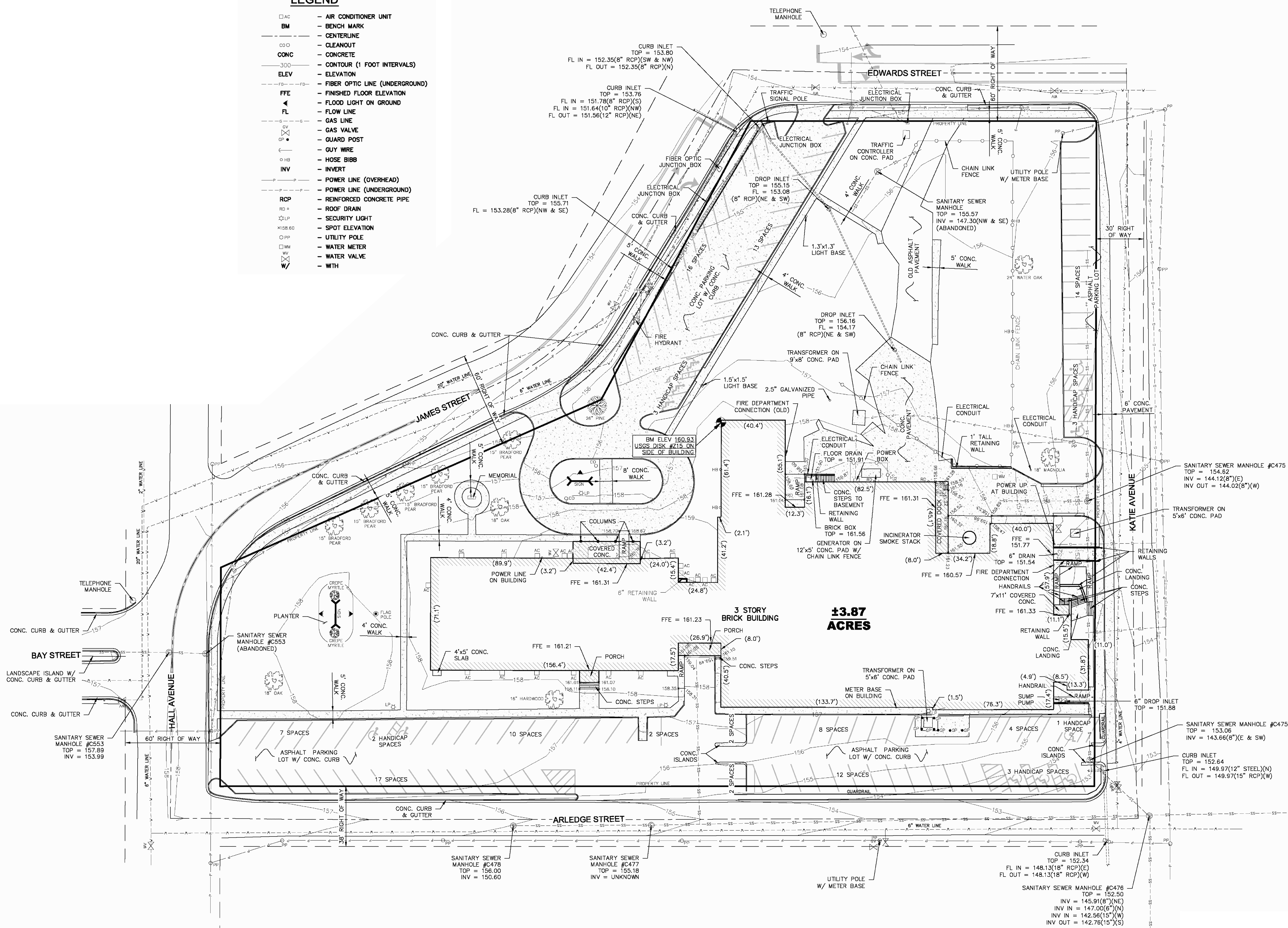
SYMBOL LEGEND:

	- CENTER LINE
	- ELECTRICAL PANEL/BOX
	- FENCE
	- FENCE POST
	- FIBER OPTIC BOX
	- FIBER OPTIC PEDESTAL
	- FIBER OPTIC INDICATOR POST
	- FIRE HYDRANT
	- GAS INDICATOR POST
	- GAS LINE (EXIST)
	- GAS LINE (PROPOSED)
	- GAS METER
	- GAS VALVE
	- GATE POST
	- GENERATOR
	- GUARD POST
	- LIGHT ON POLE
	- PROPERTY LINE
	- SAN SWR CLEAN-OUT
	- SAN SWR LINE (EXIST)
	- SAN SWR LINE (PROPOSED)
	- SAN SWR MANHOLE
	- SIGN
	- SPOT GRADE
	- STORM DRAIN
	- STORM DRAIN MANHOLE
	- TELEPHONE PEDESTAL
	- TRANSFORMER
	- UNDER DRAIN
	- UTILITY LINES (UNDERGROUND)
	- UTILITY LINES (OVERHEAD)
	- UTILITY LINES (OVERHEAD)
	- UTILITY POLE
	- UTILITY POLE
	- UTILITY POLE GUY WIRE
	- UTILITY SERVICE POLE
	- WATER LINE (EXIST)
	- WATER LINE (PROPOSED)
	- WATER METER
	- WATER VALVE

No.	DATE	DESCRIPTION			BY
GENERAL NOTES & LEGENDS					
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI					
 Engineering Progress					
301 Second Ave., Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com					
Drawn by: RES\BT		Checked by: SEM		Scale: NONE	
Date: 05-04-2018		Working No. _____		GN1 _____	
Drawing No.: 11258		Sheet No. <u> 2 </u>			

LEGEND

- | | | |
|---|------|----------------------------------|
|  | AC | — AIR CONDITIONER UNIT |
|  | BM | — BENCH MARK |
| — — — — — | | |
|  | CO | — CLEANOUT |
|  | CONC | — CONCRETE |
| — — — — — | | |
|  | 300 | — CONTOUR (1 FOOT INTERVALS) |
|  | ELEV | — ELEVATION |
| — — — — — | | |
|  | FDE | — FIBER OPTIC LINE (UNDERGROUND) |
|  | FF | — FINISHED FLOOR ELEVATION |
|  | FL | — FLOOD LIGHT ON GROUND |
| — — — — — | | |
|  | G | — GAS LINE |
|  | GV | — GAS VALVE |
|  | GP | — GUARD POST |
|  | GUY | — GUY WIRE |
|  | HB | — HOSE BIBB |
|  | INV | — INVERT |
| — — — — — | | |
|  | P | — POWER LINE (OVERHEAD) |
| — — — — — | | |
|  | P | — POWER LINE (UNDERGROUND) |
| — — — — — | | |
|  | RCP | — REINFORCED CONCRETE PIPE |
|  | RD | — ROOF DRAIN |
|  | LSP | — SECURITY LIGHT |
|  | S&B | — SPOT ELEVATION |
|  | PP | — UTILITY POLE |
|  | WM | — WATER METER |
|  | WV | — WATER VALVE |
|  | W | — WITH |



NO.	DATE	DESCRIPTION	BY

TOPOGRAPHIC MAP

INFRASTRUCTURE REHABILITATION
CITY OF HATTIESBURG
FORREST COUNTY, MISSISSIPPI



Engineering Progress

301 Second Ave. | Hattiesburg, MS 39401 | (p) 601.544.1821 | (f) 601.544.0501 | sd-w.com

Drawn by: RES\BT	Checked by: SEM	Scale: AS NOTED
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Date: 05-04-2018	Working No. TOP01
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Date: 03-04-2018	Working No: 10101
From: 11:00 AM	To: 05:00 PM

SOURCE INFORMATION:
THE MAP SHOWN HEREON IS BASED ON THE
TOPOGRAPHIC MAP PERFORMED BY SDW
ENGINEERS ON 12-11-2012 (DWG No. 1235-060)

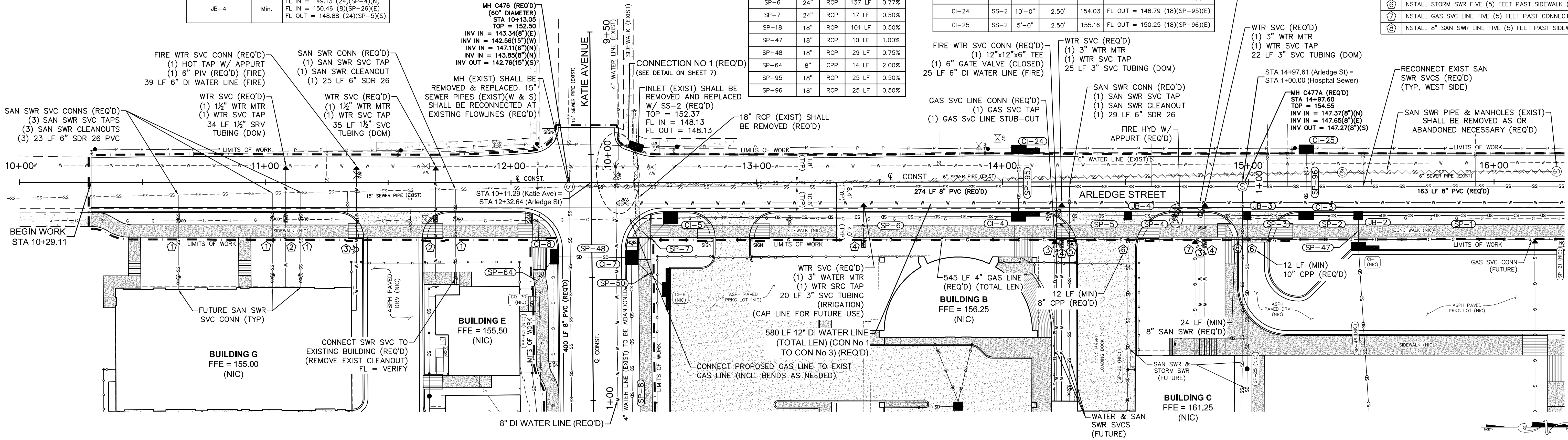
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Structure Table		
Structure Name	Height	Inverts
JB-2	Min.	FL IN = 150.56 (18)(SP-1)(N) FL IN = 150.92 (18)(SP-47)(E) FL OUT = 150.35 (18)(SP-2)(S)
JB-3	Min.	FL IN = 149.87 (18)(SP-3)(N) FL IN = 150.54 (10)(SP-25)(E) FL OUT = 149.37 (24)(SP-4)(S)
JB-4	Min.	FL IN = 149.13 (24)(SP-4)(N) FL IN = 150.46 (8)(SP-26)(E) FL OUT = 148.88 (24)(SP-5)(S)

Pipe Table				
Pipe Name	Size	Type	Length	Slope
SP-1	18"	RCP	84 LF	1.00%
SP-2	18"	RCP	18 LF	1.14%
SP-3	18"	RCP	21 LF	1.00%
SP-4	24"	RCP	47 LF	0.50%
SP-5	24"	RCP	42 LF	0.50%
SP-6	24"	RCP	137 LF	0.77%
SP-7	24"	RCP	17 LF	0.50%
SP-18	18"	RCP	101 LF	0.50%
SP-47	18"	RCP	10 LF	1.00%
SP-48	18"	RCP	29 LF	0.75%
SP-64	8"	CPP	14 LF	2.00%
SP-95	18"	RCP	25 LF	0.50%
SP-96	18"	RCP	25 LF	0.50%

Structure Table					
Structure Name	Type	Length	Width (W)	Top	Inverts
CI-3	SS-2	5'-0"	2.50'	155.11	FL IN = 150.11 (18)(SP-2)(N) FL IN = 150.11 (18)(SP-96)(W) FL OUT = 150.11 (18)(SP-3)(S)
CI-4	SS-2	10'-0"	3.00'	153.83	FL IN = 148.66 (24)(SP-5)(N) FL IN = 148.66 (18)(SP-95)(W) FL OUT = 148.66 (24)(SP-6)(S)
CI-5	SS-2	5'-0"	4.00'	152.57	FL IN = 147.57 (24)(SP-6)(N) FL OUT = 147.57 (24)(SP-7)(SE)
CI-24	SS-2	10'-0"	2.50'	154.03	FL OUT = 148.79 (18)(SP-95)(E)
CI-25	SS-2	5'-0"	2.50'	155.16	FL OUT = 150.25 (18)(SP-96)(E)

Improvements Key	
Key	Note
①	INSTALL SAN SWR SVCS FIVE (5) FEET PAST SIDEWALK & CAP
②	INSTALL WTR SVC FIVE (5) FEET PAST SIDEWALK & CAP
③	INSTALL FIRE WTR SVC FIVE (5) FEET PAST SW & CAP
④	INSTALL WTR SVC LINE FIVE (5) FEET PAST MTR & CAP
⑤	INSTALL SAN SWR SVC LINE FIVE (5) FEET PAST CLEANOUT & CAP
⑥	INSTALL STORM SWR FIVE (5) FEET PAST SIDEWALK (MIN) & PLUG
⑦	INSTALL GAS SVC LINE FIVE (5) FEET PAST CONNECTION (MIN)
⑧	INSTALL 8" SAN SWR LINE FIVE (5) FEET PAST SIDEWALK & CAP



GENERAL NOTES:

- ALL SAN SWR SVCS (EXIST) SHALL BE LOCATED PRIOR TO CONSTRUCTION AND CONNECTED TO PROPOSED SEWER MAIN (REQ'D)
- ALL NEW SAN SWR SVCS SHALL BE A 0.50% MIN GRADE
- THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF GAS LINES WITH THE UTILITY OWNER THAT ARE IN CONFLICT WITH CONSTRUCTION OF THE PROPOSED SAN SWR & STORM SWR

INLET & JUNCTION BOX NOTES:

- THE FLOW LINE ELEVATIONS SHOWN IN THESE TABLES ARE PIPE ELEVATIONS. THE CONTRACTOR SHALL MAKE WHATEVER ADJUSTMENTS AND CALCULATIONS NECESSARY TO CONSTRUCT THE STRUCTURES TO THE PROPER INVERT ELEVATIONS. ALL INVERTS SHALL BE GROUTED TO INSURE PROPER FLOW AND PREVENT SEDIMENT AND DEBRIS ACCUMULATION.
- ALL CONCRETE INLETS SHALL HAVE CAST-IN-PLACE TOPS. INLET TOPS & GRATES SHALL BE FORMED AND SET TO MATCH FINISHED GRADES SHOWN ON THE GRADING PLANS. ABSOLUTELY NO PRECAST INLET TOP SECTIONS SHALL BE ALLOWED ON THIS PROJECT.
- CUT SHEETS FOR ALL DRAINAGE STRUCTURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION. CUT SHEETS SHALL SHOW THE TOP GRADES OF THE STRUCTURE AS WELL AS THE SURROUNDING AREA OF THE STRUCTURE.

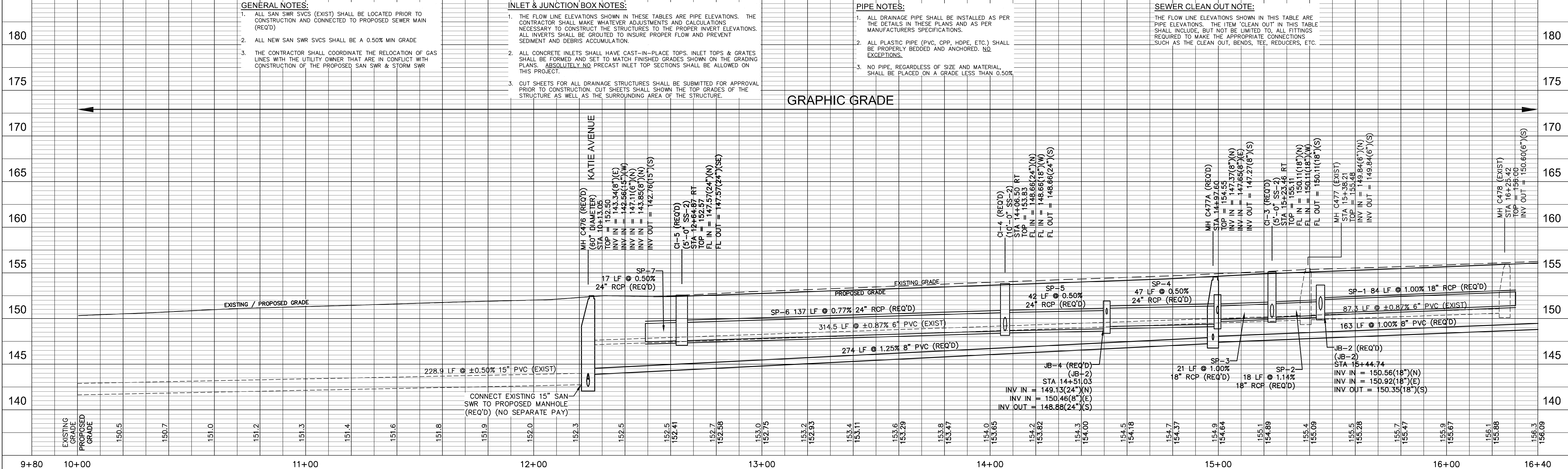
PIPE NOTES:

- ALL DRAINAGE PIPE SHALL BE INSTALLED AS PER THE DETAILS IN THESE PLANS AND AS PER MANUFACTURERS SPECIFICATIONS.
- ALL PLASTIC PIPE (PVC, CPP, HDPE, ETC.) SHALL BE PROPERLY BEDDED AND ANCHORED. NO EXCEPTIONS.
- NO PIPE, REGARDLESS OF SIZE AND MATERIAL, SHALL BE PLACED ON A GRADE LESS THAN 0.50%.

SEWER CLEAN OUT NOTE:

THE FLOW LINE ELEVATIONS SHOWN IN THIS TABLE ARE PIPE ELEVATIONS. THE ITEM 'CLEAN OUT' IN THIS TABLE SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL FITTINGS REQUIRED TO MAKE THE APPROPRIATE CONNECTIONS SUCH AS THE CLEAN OUT, BENDS, TEE, REDUCERS, ETC.

GRAPHIC GRADE



ARLEDGE STREET STA 10+00 - STA 16+40

INFRASTRUCTURE REHABILITATION
HATTIESBURG, MISSISSIPPI

DRAWN BY: BT

DATE: 05-04-2018

CHECKED BY: SEM

SCALE: 1" = 20' H; 1" = 5' V

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DRAWING NO.

11258

WORKING No. PnP 1

SHEET NO. 5

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Structure Table					
Structure Name	Type	Length	Width (W)	Top	Inverts
CI-7	SS-2	5'-0"	4.00'	153.11	FL IN = 147.46 (24)(SP-7)(NW) FL IN = 147.96 (18)(SP-48)(S) FL IN = 148.24 (15)(SP-50)(NE) FL OUT = 146.96 (30)(SP-8)(E)
CI-8	SS-2	5'-0"	2.50'	153.10	FL IN = 149.02 (8)(SP-64)(SE) FL OUT = 148.19 (18)(SP-48)(N)
CI-10	SS-2	5'-0"	3.00'	155.34	FL IN = 149.12 (18)(SP-11)(E) FL IN = 150.03 (18)(SP-49)(S) FL OUT = 149.12 (18)(SP-12)(W)
CI-11	SS-2	10'-0"	3.50'	154.87	FL IN = 145.93 (30)(SP-9)(W) FL IN = 147.21 (18)(SP-12)(E) FL OUT = 145.93 (44)(SP-10)(S)

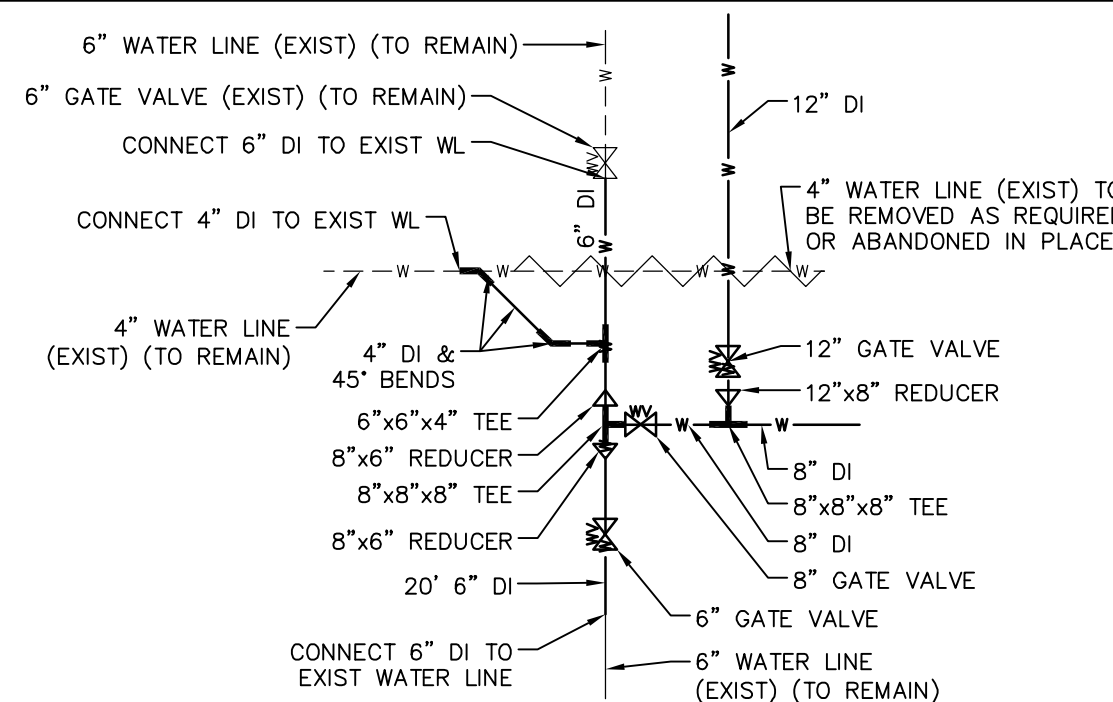
Structure Table					
Structure Name	Type	Length	Width (W)	Top	Inverts
CI-12	SS-2	5'-0"	2.50'	155.34	FL OUT = 150.34 (18)(SP-49)(N)
CI-14	SS-2	10'-0"	2.50'	156.83	FL IN = 145.79 (44)(SP-65)(N) FL OUT = 145.79 (44)(SP-66)(S)

Structure Table		
Structure Name	Height	Inverts
JB-6	Min.	FL IN = 146.41 (30)(SP-8)(W) FL IN = 147.22 (24)(SP-17)(N) FL OUT = 146.41 (30)(SP-9)(E)

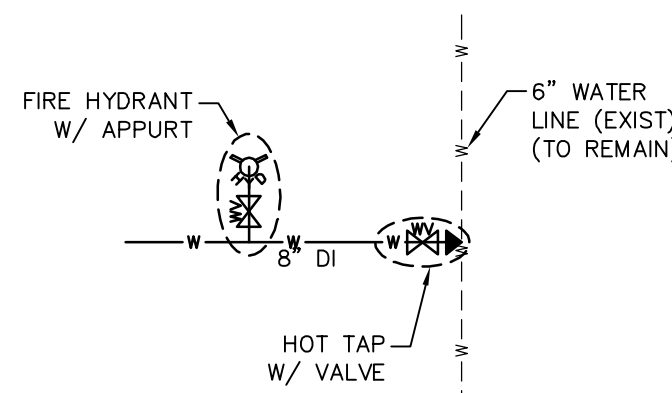
Pipe Table					
Pipe Name	Size	Type	Length	Slope	
SP-7	24"	RCP	17 LF	0.50%	
SP-8	30"	RCP	107 LF	0.50%	
SP-9	30"	RCP	91 LF	0.50%	
SP-11	18"	RCP	70 LF	1.00%	
SP-12	18"	RCP	91 LF	2.00%	
SP-17	24"	RCP	11 LF	2.00%	
SP-48	18"	RCP	29 LF	0.75%	
SP-49	18"	RCP	29 LF	1.00%	
SP-50	15"	RCP	15 LF	1.00%	
SP-64	8"	CPP	14 LF	2.00%	

Pipe Table					
Pipe Name	Size	Type	Length	Slope	
SP-10	44"x27"	RCAP	30 LF	0.50%	
SP-66	44"x27"	RCAP	74 LF	0.50%	

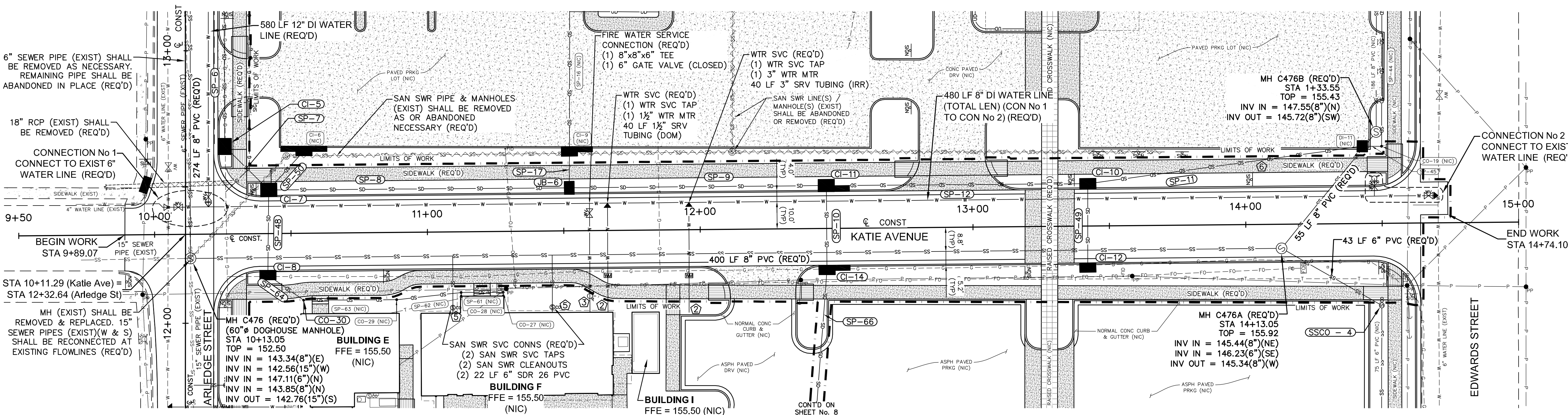
Improvements Key	
Key	Note
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4	INSTALL WTR SVC LINE FIVE (5) FEET PAST MTR & CAP
5	INSTALL SAN SWR SVC LINE FIVE (5) FEET PAST CLEANOUT & CAP
6	INSTALL STORM SWR FIVE (5) FEET PAST SIDEWALK (MIN) & PLUG
7	INSTALL GAS SVC LINE FIVE (5) FEET PAST CONNECTION (MIN)
8	INSTALL 8" SAN SWR LINE FIVE (5) FEET PAST SIDEWALK & CAP



CONNECTION No 1
(KATIE & ARLEDGE WATER CONNECTION)
SCALE: NONE



CONNECTION No 2
(KATIE & ARLEDGE WATER CONNECTION)
SCALE: NONE



GENERAL NOTES:

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- ALL NEW SAN SWR SVCS SHALL BE A 0.50% MIN GRADE
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INLET & JUNCTION BOX NOTES:

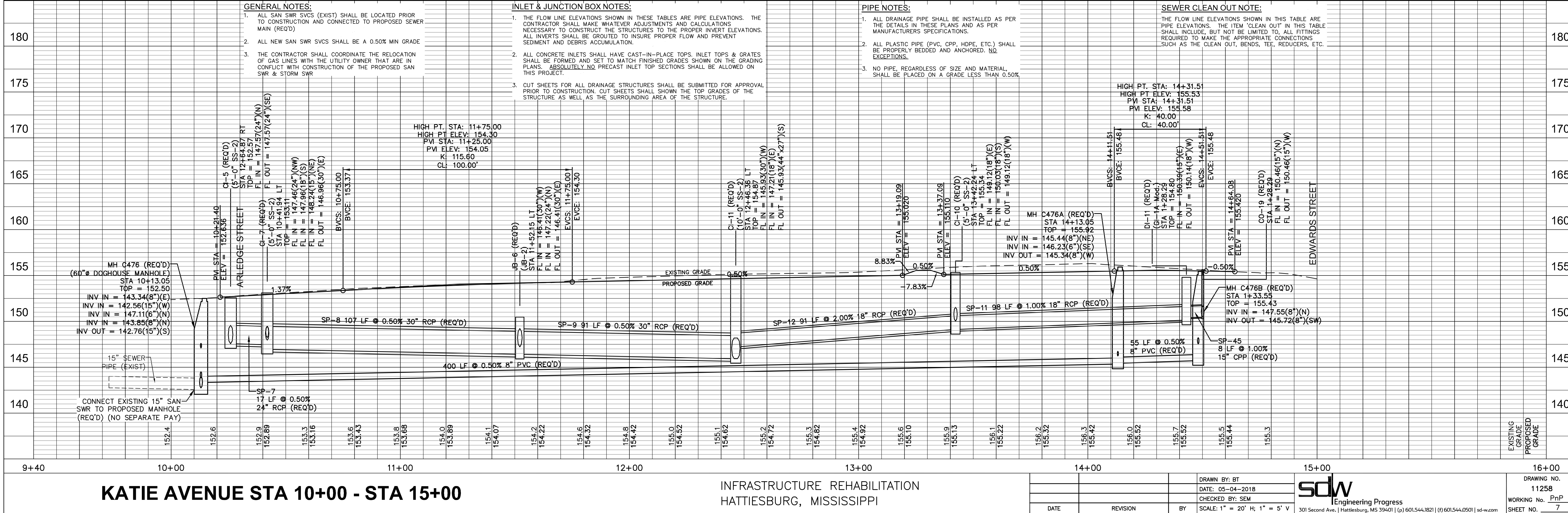
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Structure Table					
Structure Name	Type	Length	Width (W)	Top	Inverts
CI-14	SS-2	10'-0"	2.50'	156.93	FL IN = 145.79 (44)(SP-65)(N) FL OUT = 145.79 (44)(SP-66)(S)
CI-15	SS-2	10'-0"	2.50'	154.78	FL IN = 145.42 (44)(SP-66)(N) FL OUT = 145.09 (51)(SP-67)(S)
CI-16	SS-2	15'-0"	2.50'	153.80	FL IN = 144.67 (51)(SP-67)(N) FL OUT = 144.67 (51)(SP-68)(S)
CI-18	SS-2	10'-0"	2.50'	151.25	FL IN = 143.93 (51)(SP-69)(N) FL OUT = 143.93 (51)(SP-70)(S)

Structure Table		
Structure Name	Height	Inverts
JB-7	Min.	FL IN = 144.47 (51)(SP-68)(N) FL IN = 145.80 (15)(SP-71)(W) FL OUT = 144.47 (51)(SP-69)(S)

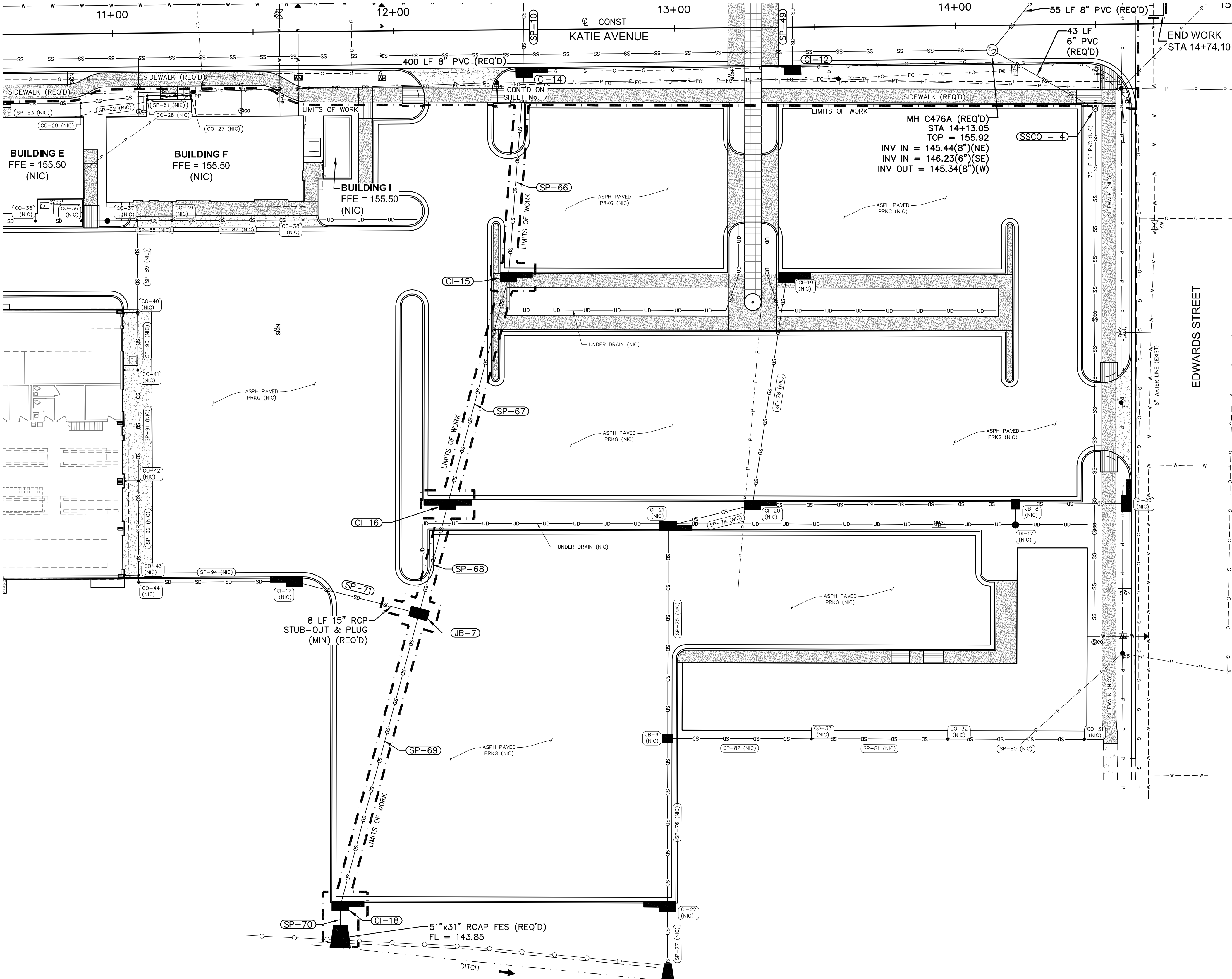
Pipe Table				
Pipe Name	Size	Type	Length	Slope
SP-10	44"x27"	RCAP	30 LF	0.50%
SP-66	44"x27"	RCAP	74 LF	0.50%
SP-67	51"x31"	RCAP	84 LF	0.50%
SP-68	51"x31"	RCAP	41 LF	0.50%
SP-69	51"x31"	RCAP	108 LF	0.50%
SP-70	51"x31"	RCAP	15 LF	0.50%

INLET & JUNCTION BOX NOTES:

- THE FLOW LINE ELEVATIONS SHOWN IN THESE TABLES ARE PIPE ELEVATIONS. THE CONTRACTOR SHALL MAKE WHATEVER ADJUSTMENTS AND CALCULATIONS NECESSARY TO CONSTRUCT THE STRUCTURES TO THE PROPER INVERT ELEVATIONS. ALL INVERTS SHALL BE GROUTED TO INSURE PROPER FLOW AND PREVENT SEDIMENT AND DEBRIS ACCUMULATION.
- ALL CONCRETE INLETS SHALL HAVE CAST-IN-PLACE TOPS. INLET TOPS & GRATES SHALL BE FORMED AND SET TO MATCH FINISHED GRADES SHOWN ON THE GRADING PLANS. ABSOLUTELY NO PRECAST INLET TOP SECTIONS SHALL BE ALLOWED ON THIS PROJECT.
- CUT SHEETS FOR ALL DRAINAGE STRUCTURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION. CUT SHEETS SHALL SHOWN THE TOP GRADES OF THE STRUCTURE AS WELL AS THE SURROUNDING AREA OF THE STRUCTURE.

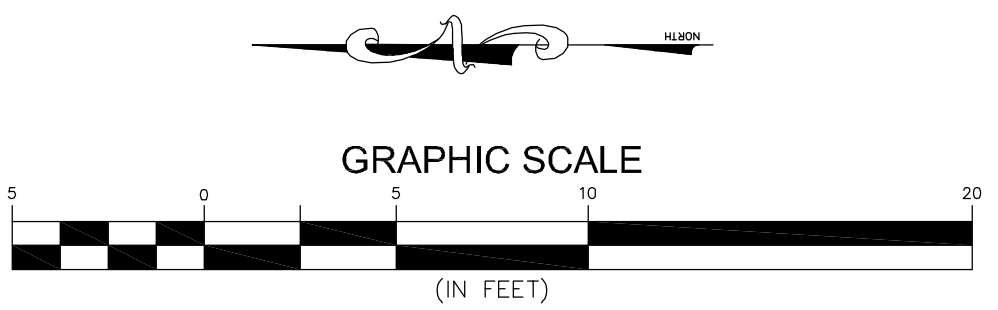
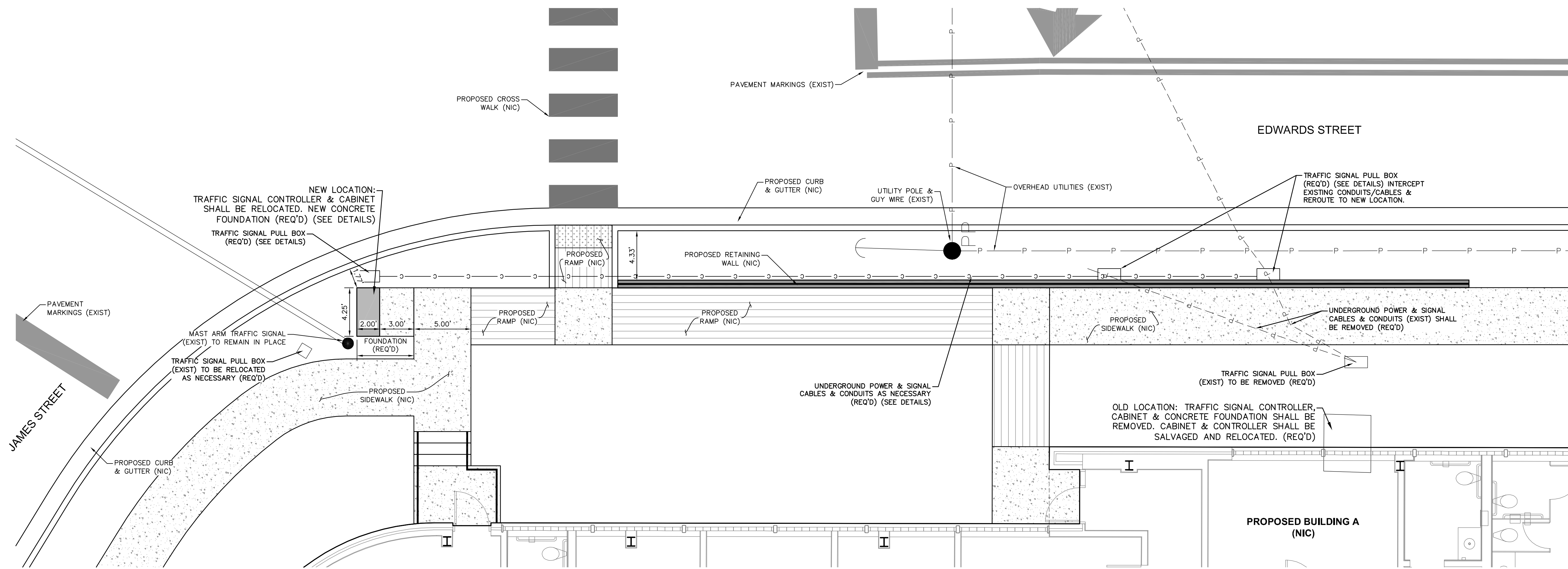
PIPE NOTES:

- ALL DRAINAGE PIPE SHALL BE INSTALLED AS PER THE DETAILS IN THESE PLANS AND AS PER MANUFACTURERS SPECIFICATIONS.
- ALL PLASTIC PIPE (PVC, CPP, HDPE, ETC.) SHALL BE PROPERLY BEDDED AND ANCHORED. NO EXCEPTIONS.
- NO PIPE, REGARDLESS OF SIZE AND MATERIAL, SHALL BE PLACED ON A GRADE LESS THAN 0.50%.



NO.	DATE	DESCRIPTION	BY
KATIE AVENUE STORM DISCHARGE PLAN			
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301 Second Ave., Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
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Drawing No.: 11258	Sheet No.: 8		

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NO.	DATE	DESCRIPTION	BY

TRAFFIC SIGNAL RELOCATION PLAN

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CITY OF HATTIESBURG
FORREST COUNTY, MISSISSIPPI

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Date: 05-04-2018	Working No. TS1	
Drawing No.: 11258	Sheet No. 9	

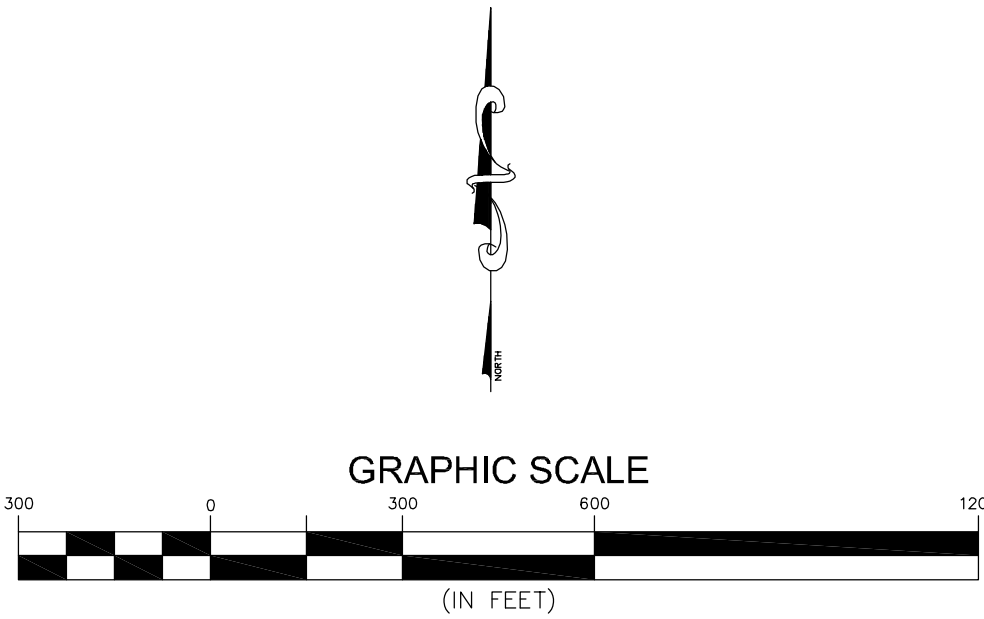
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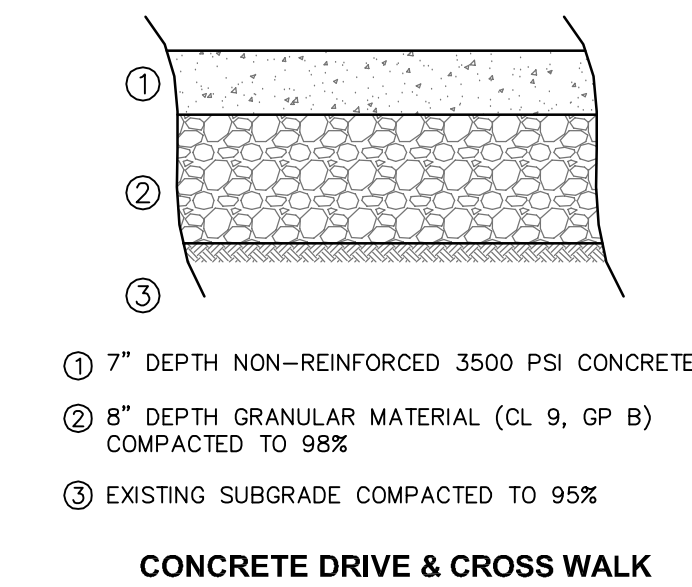
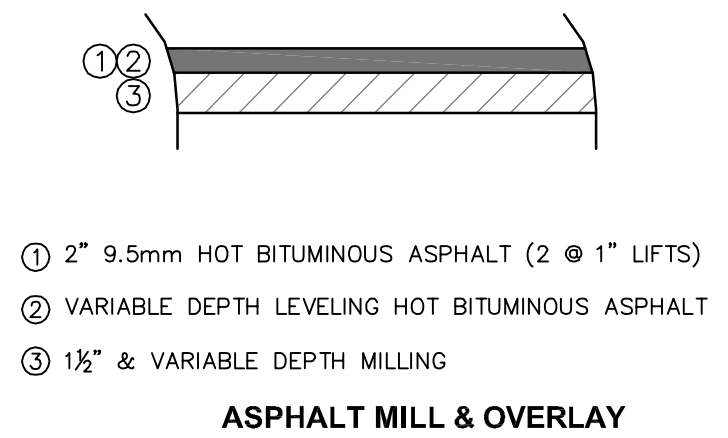
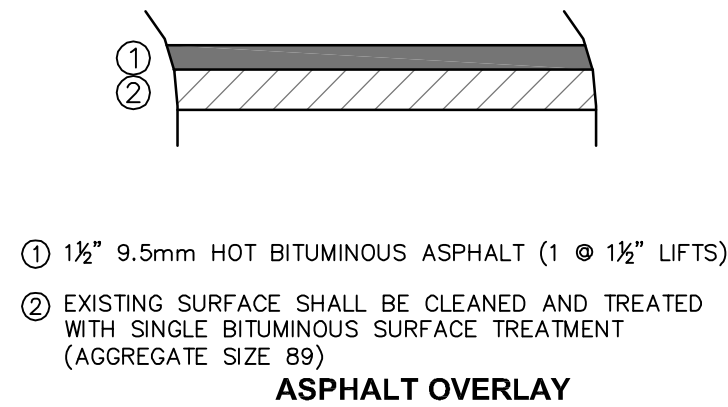
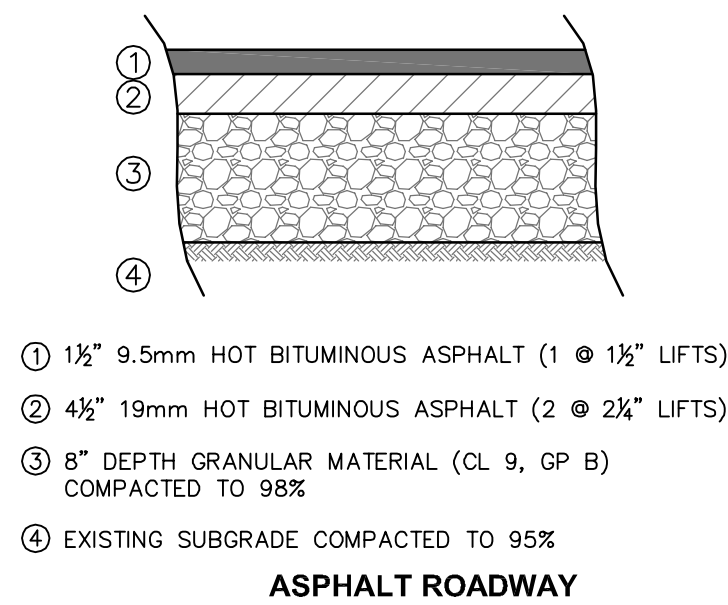
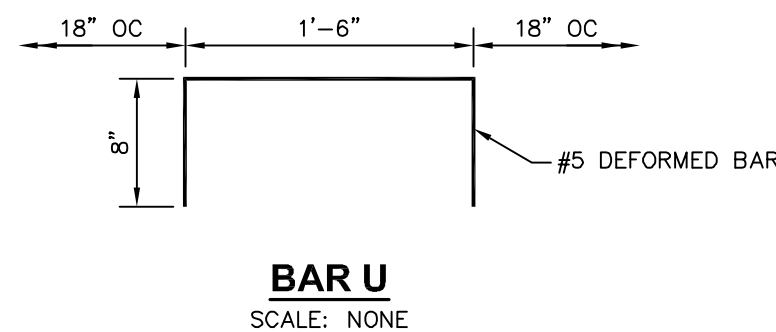
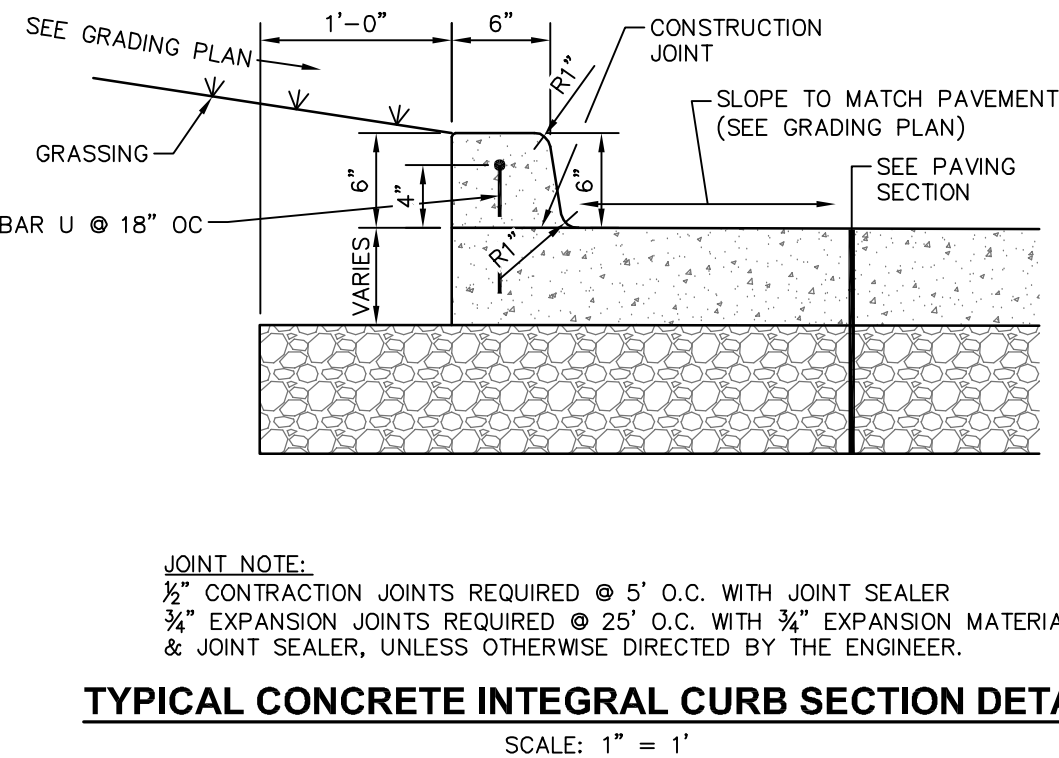
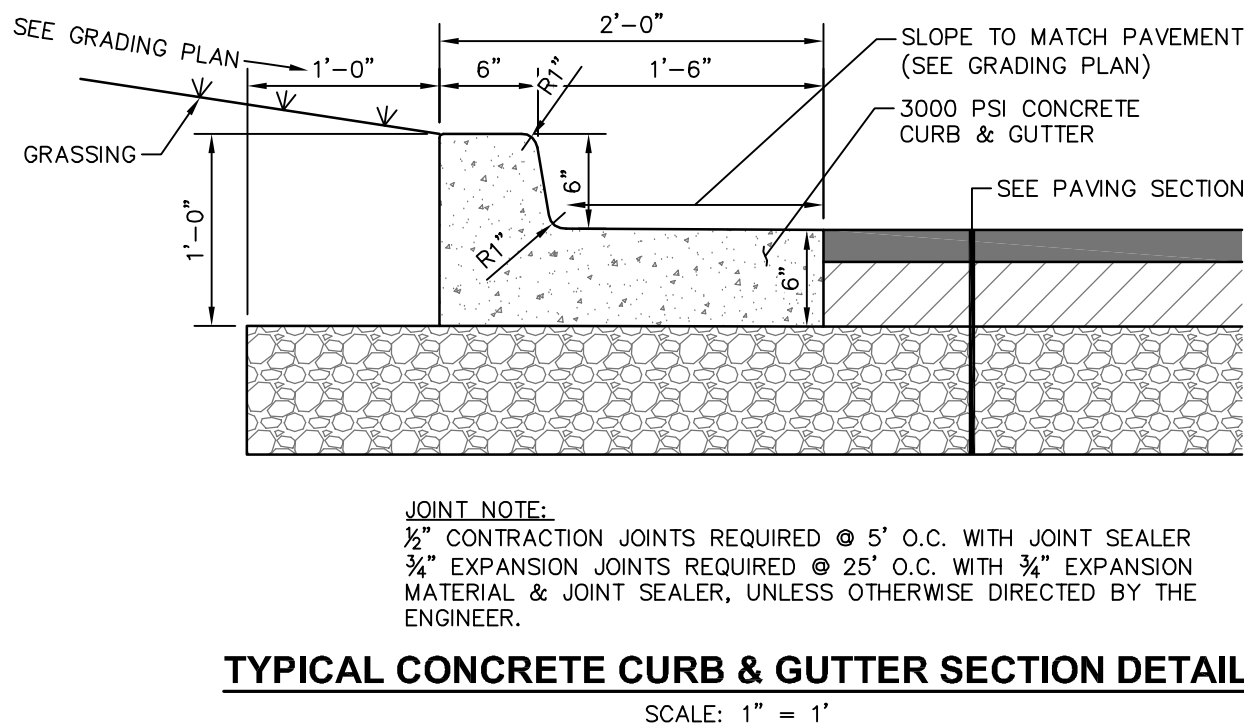
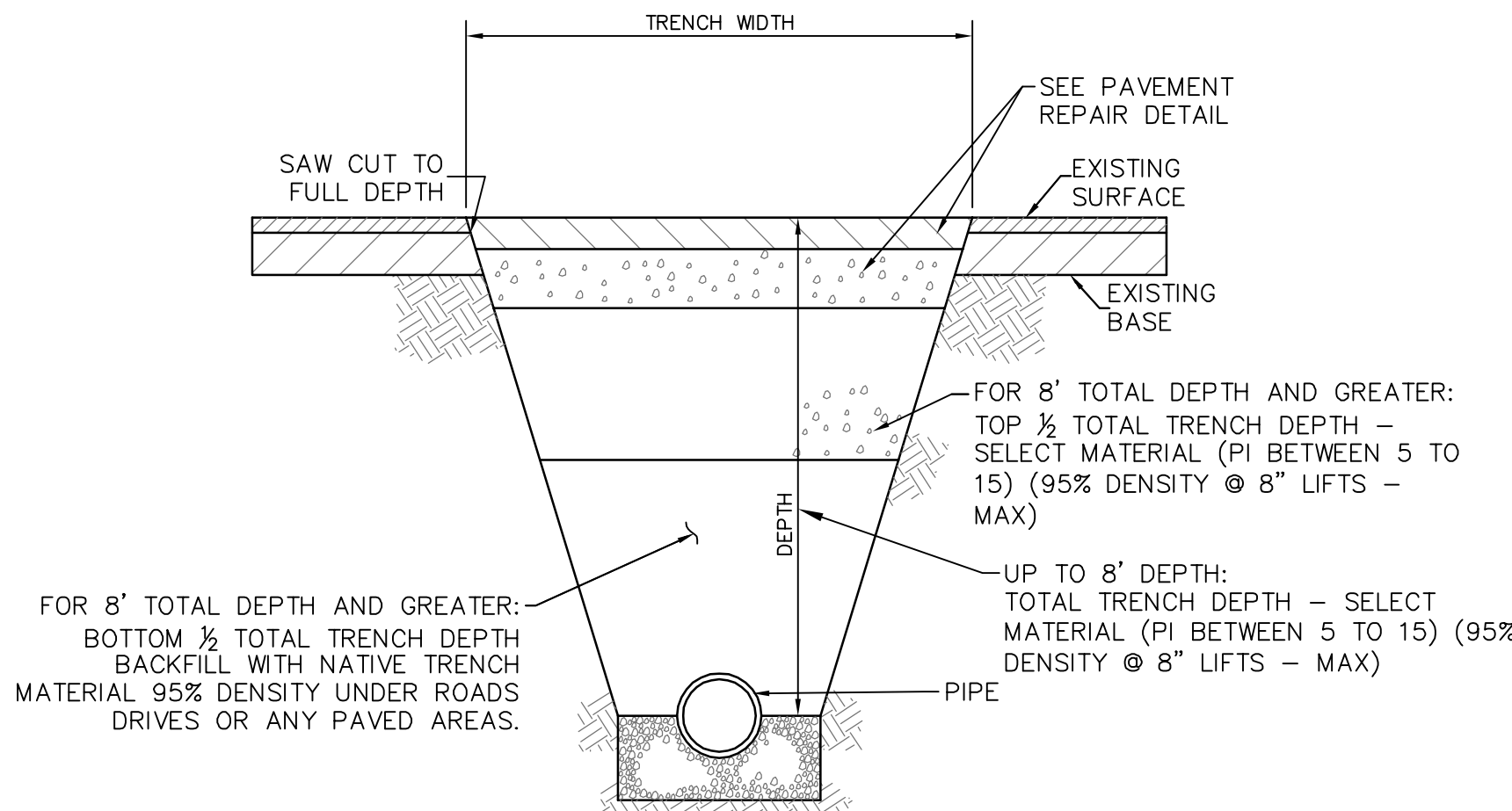
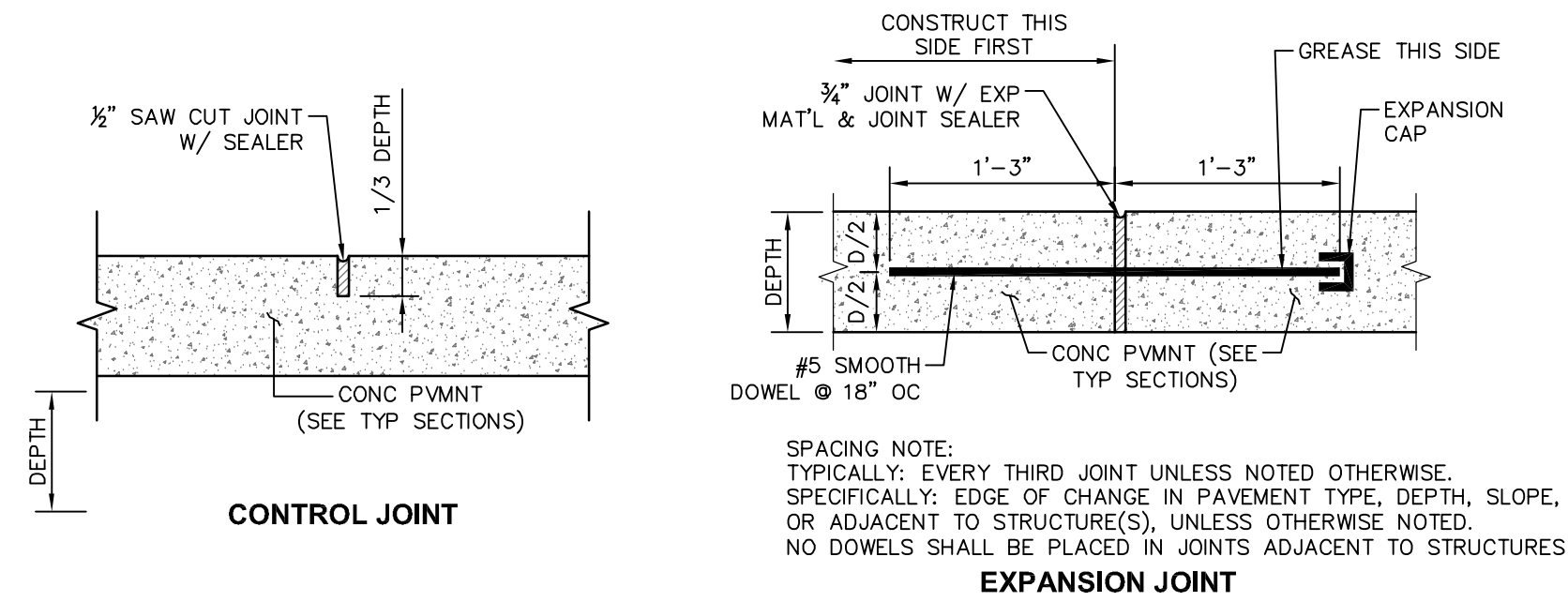
SIGN SCHEDULE			
NOTE	SIZE	SIGN No.	REMARKS
1	30"x24"	M4-9	DETOUR
2	30"x24"	M4-9BL	DETOUR TURN LEFT
3	30"x24"	M4-9BR	DETOUR TURN RIGHT
4	36"x36"	W20-1	ADVANCED ROAD WORK AHEAD
5	36"x36"	W20-2	ADVANCED DETOUR AHEAD
6	30"x6"	SD-1	ARLEDGE ST
7	30"x6"	SD-2	KATIE AVE
8	60"x30"	R11-4	ROAD CLOSED TO THRU TRAFFIC, MOUNTED ON TYPE III BARRICADE, DOUBLE FACED, 24 FT WIDE
9	36"x36"	R1-1	MOUNTED TO REAR OF BARRICADE

SPECIAL TRAFFIC CONTROL NOTES:

1. HALL AVENUE, JAMES STREET & EDWARDS STREET SHALL REMAIN OPEN AT ALL TIMES, EXCEPT FOR MINIMAL TEMPORARY LANE CLOSURES FOR WORK NOTED ON THE PLAN SHEETS.
2. ALL CONSTRUCTION DETOUR SIGNS AND BARRICADES SHALL BE REMOVED UPON PLACEMENT OF BASE COURSE ASPHALT.
3. ALL REMAINING CONSTRUCTION SIGNS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT BUT PRIOR TO FINAL ACCEPTANCE.

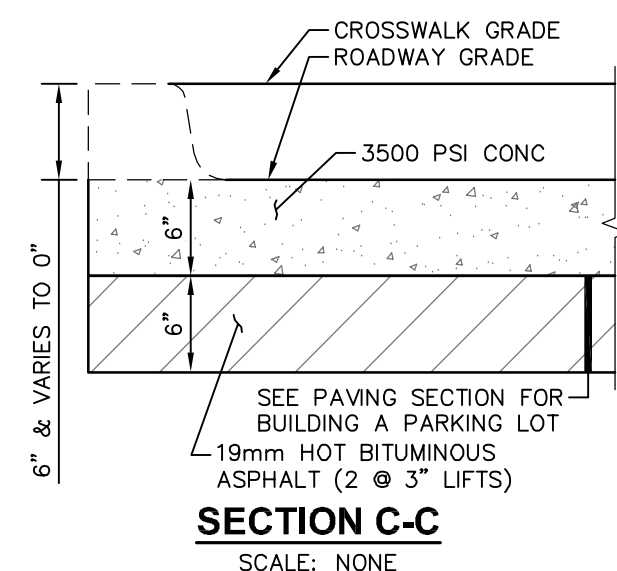
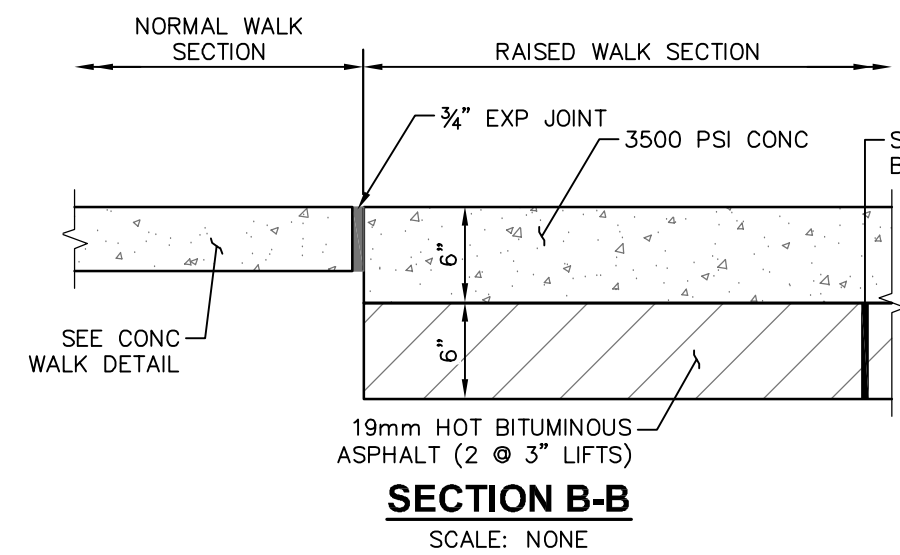
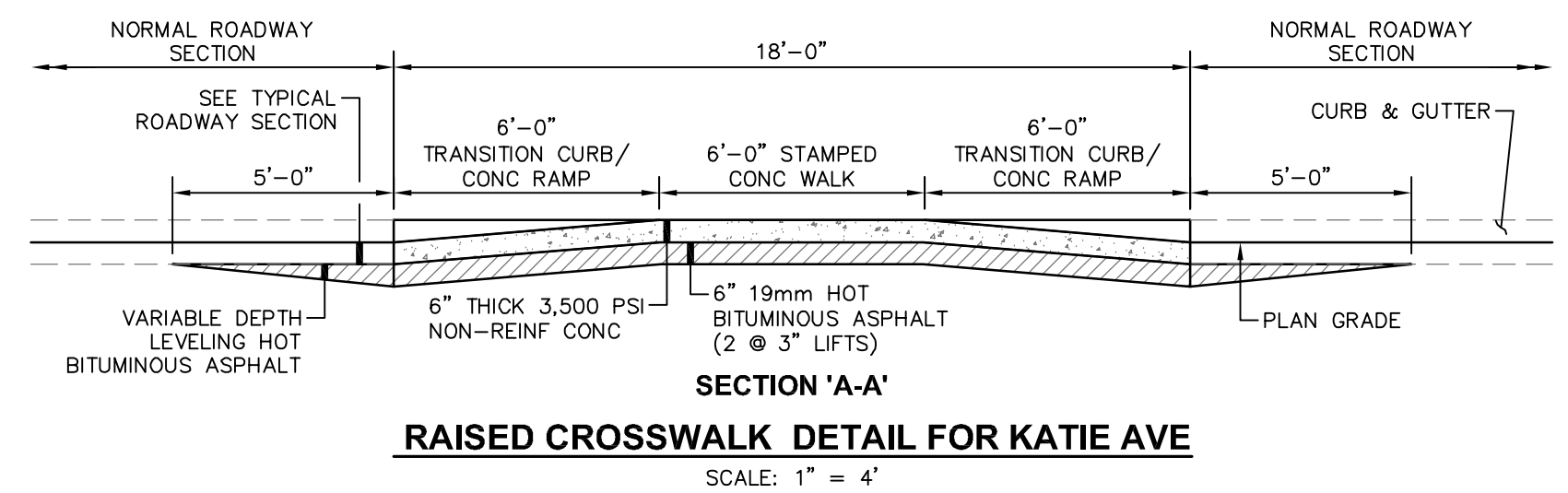
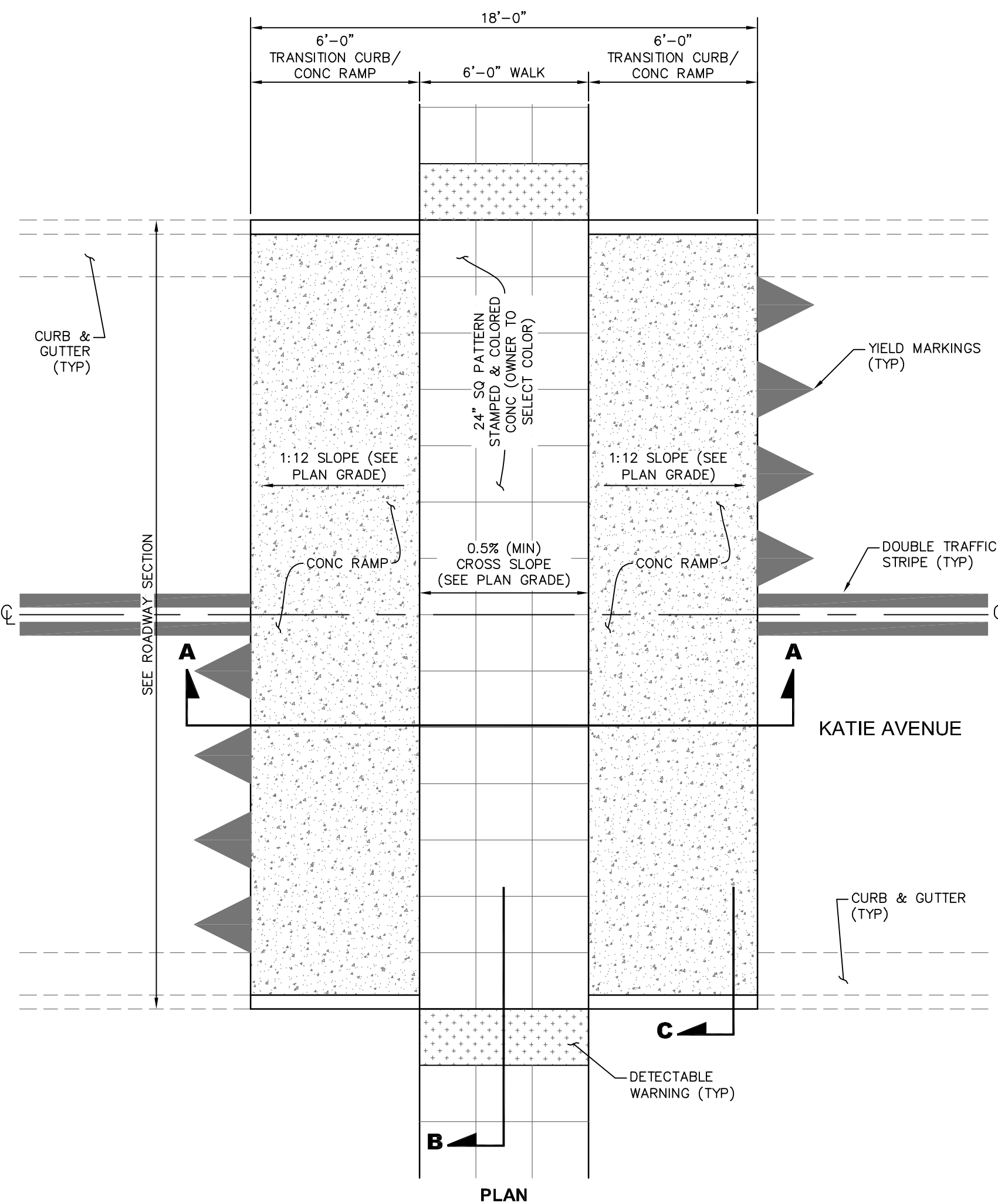


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TRAFFIC CONTROL PLAN			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
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Date:	05-04-2018	Scale:	AS NOTED
Drawing No.:	11258	Working No.:	TCP 1
		Sheet No.:	10

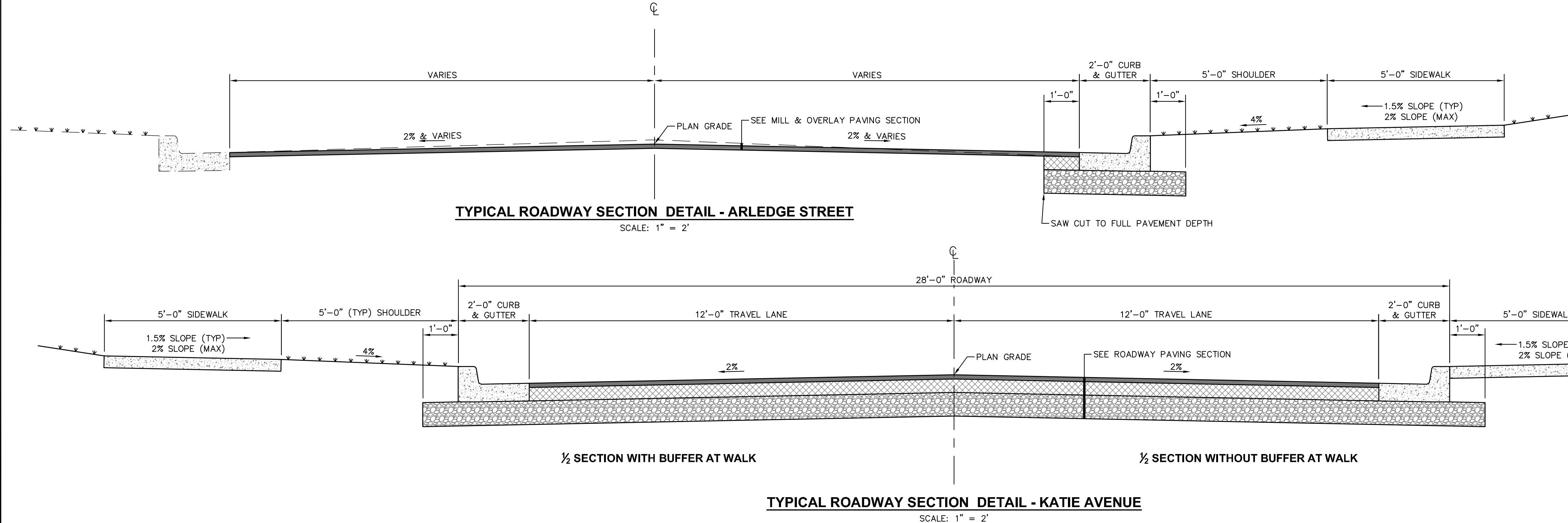


COMPACTION NOTE:
ALL COMPACTION NOTED IN THE PAVING SECTIONS HEREON SHALL BE TO STANDARD PROCTOR

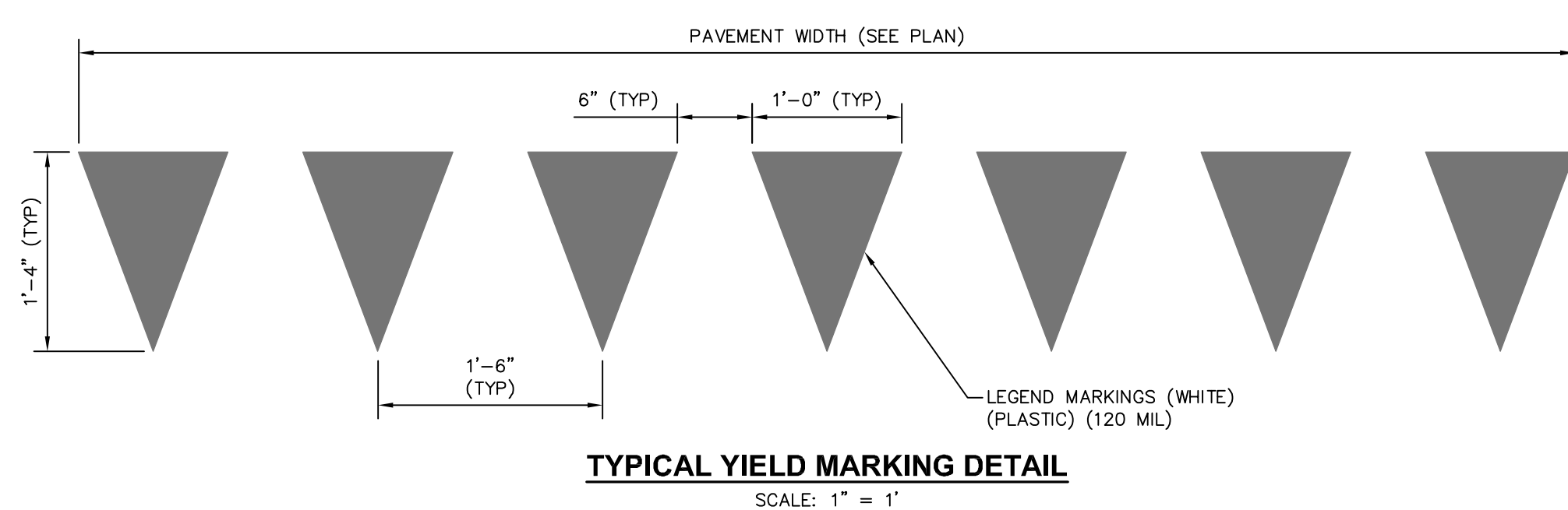
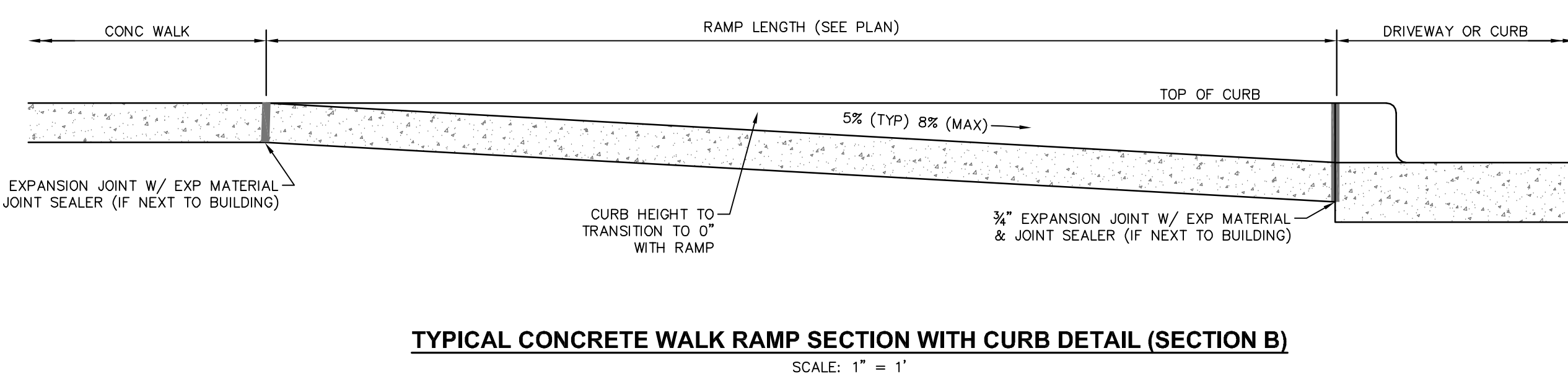
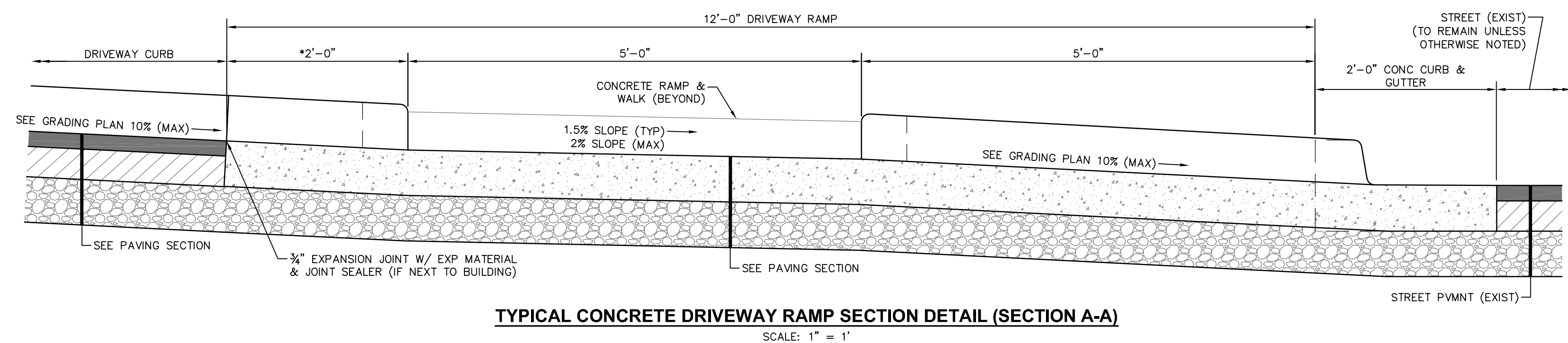
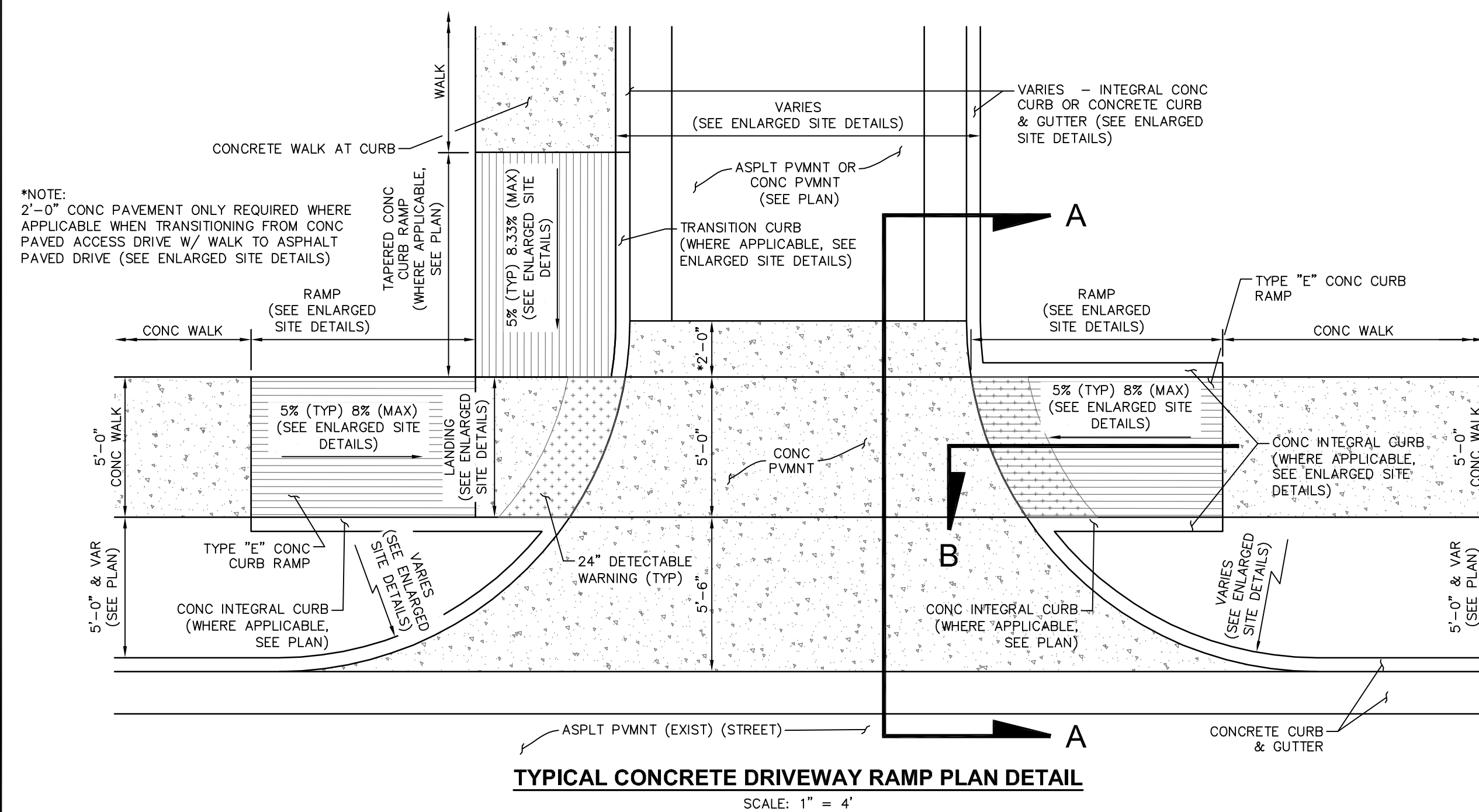
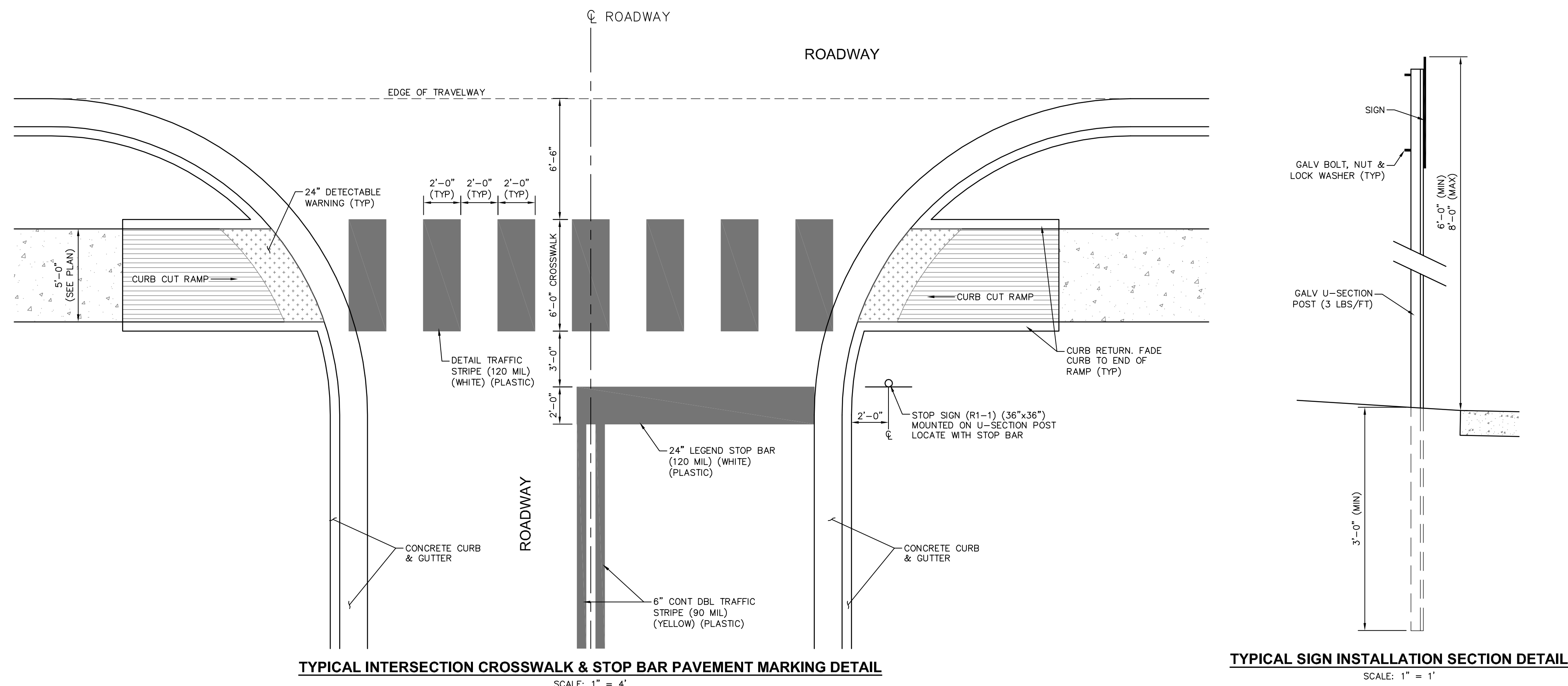
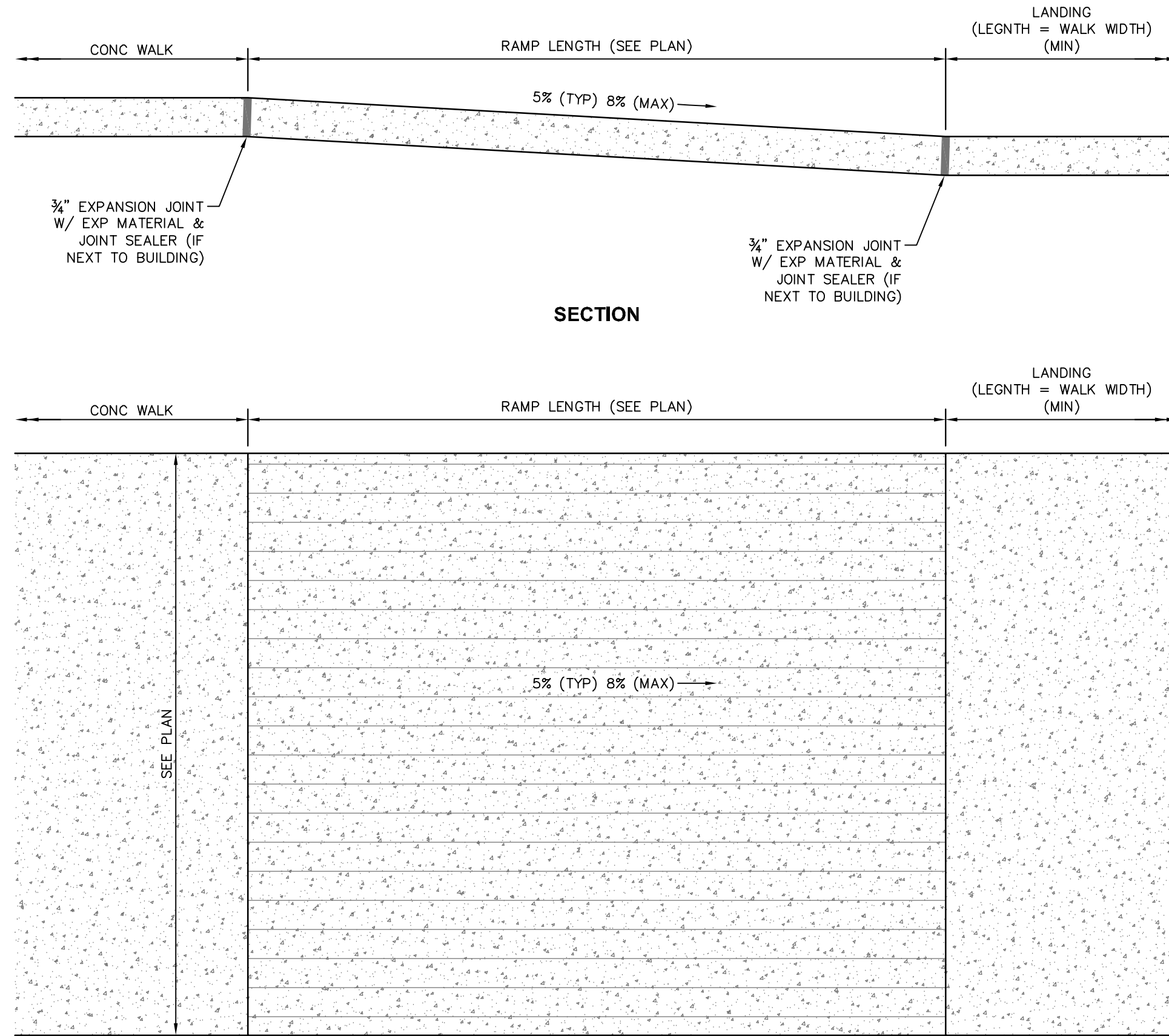
TYPICAL PAVEMENT SECTIONS
NOT TO SCALE



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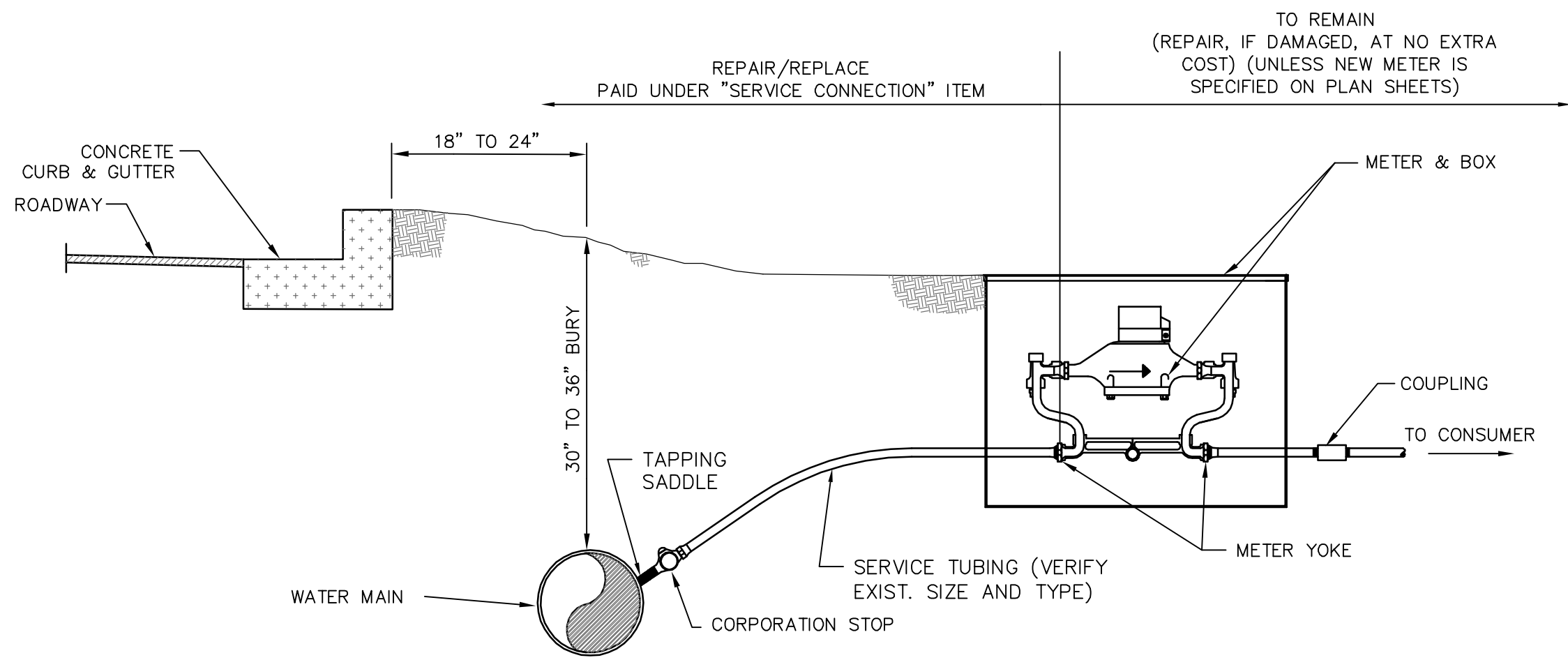


NO.	DATE	DESCRIPTION	BY
GENERAL SITE DETAILS			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
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Drawing No.:	11258	Sheet No.:	11

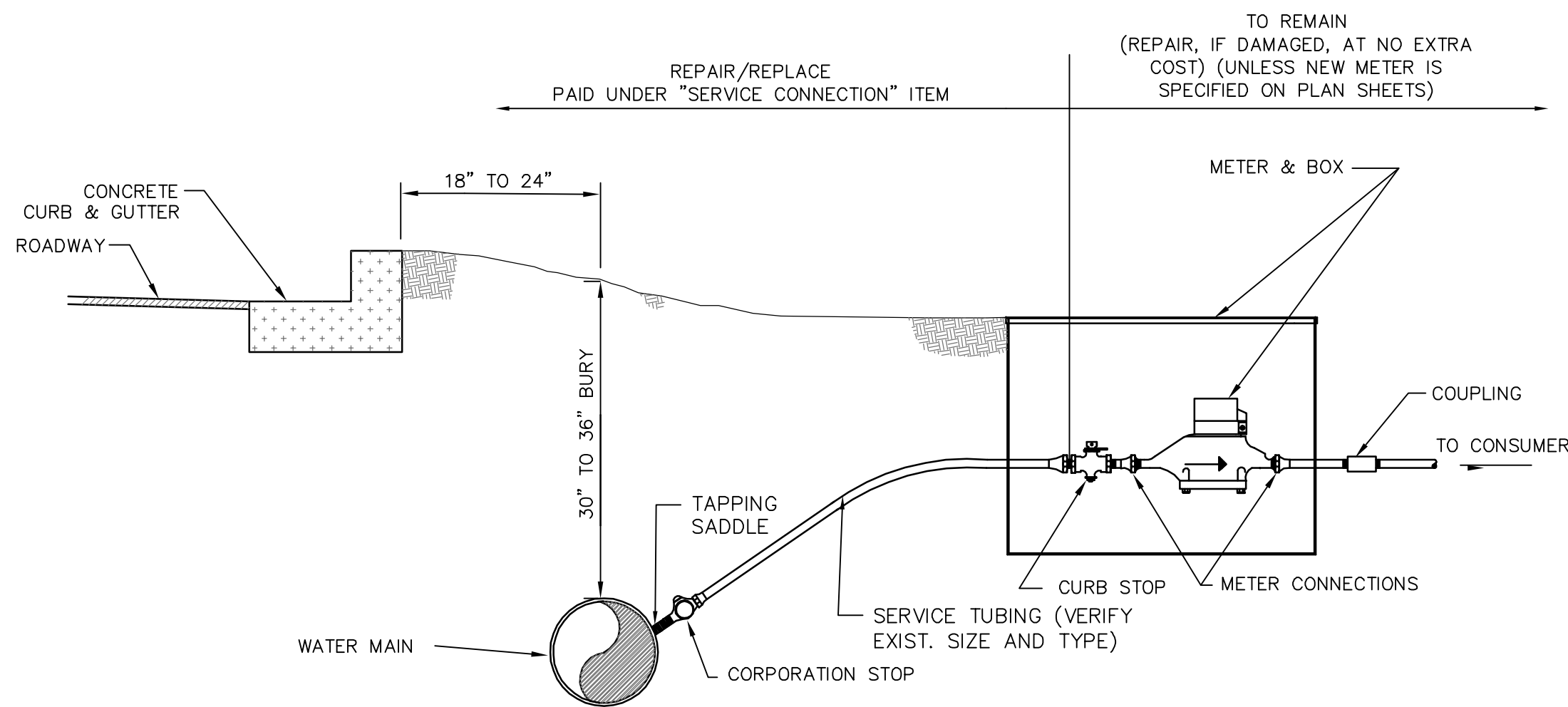


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GENERAL SITE DETAILS			
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FORREST COUNTY, MISSISSIPPI			
			
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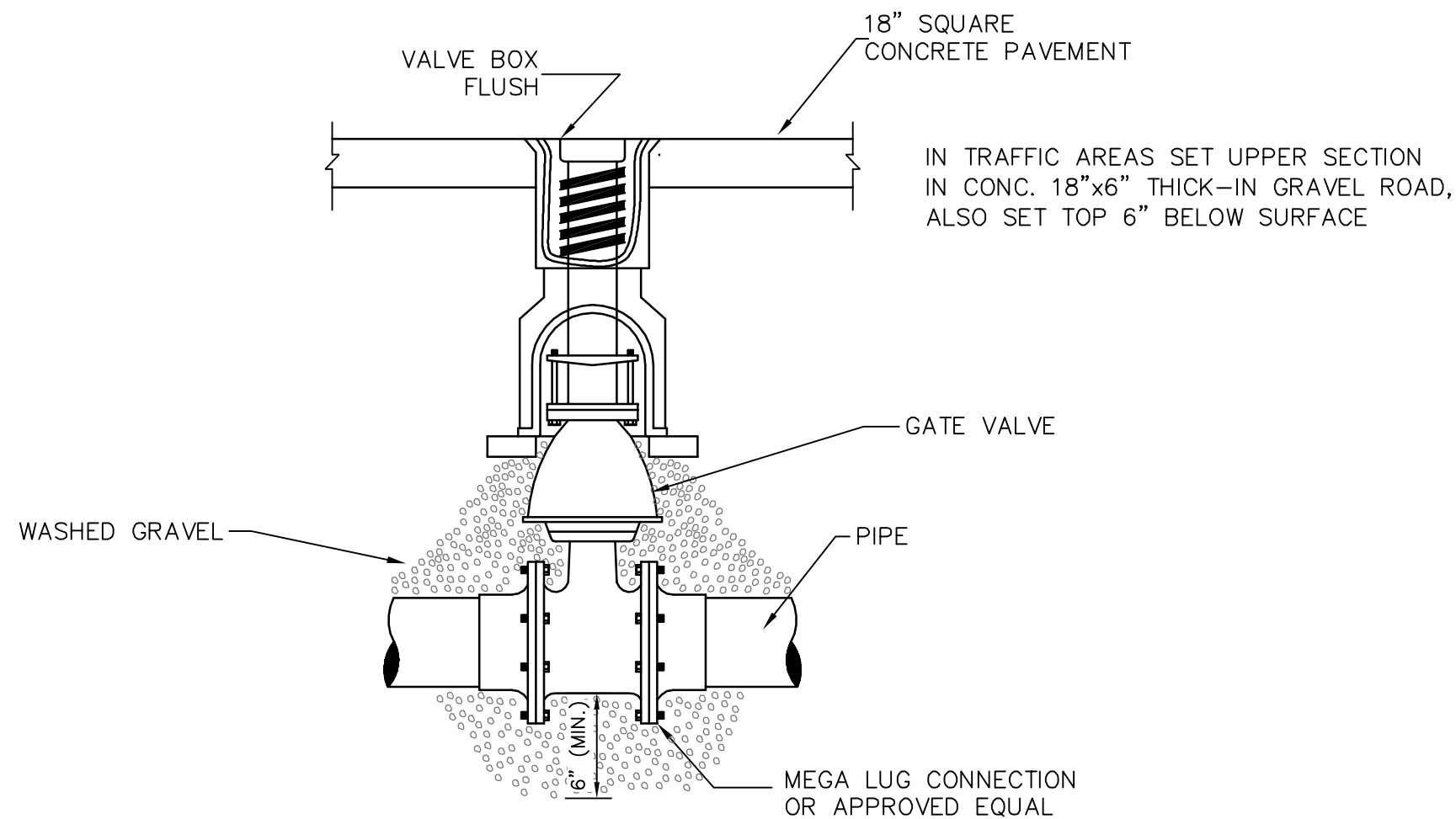
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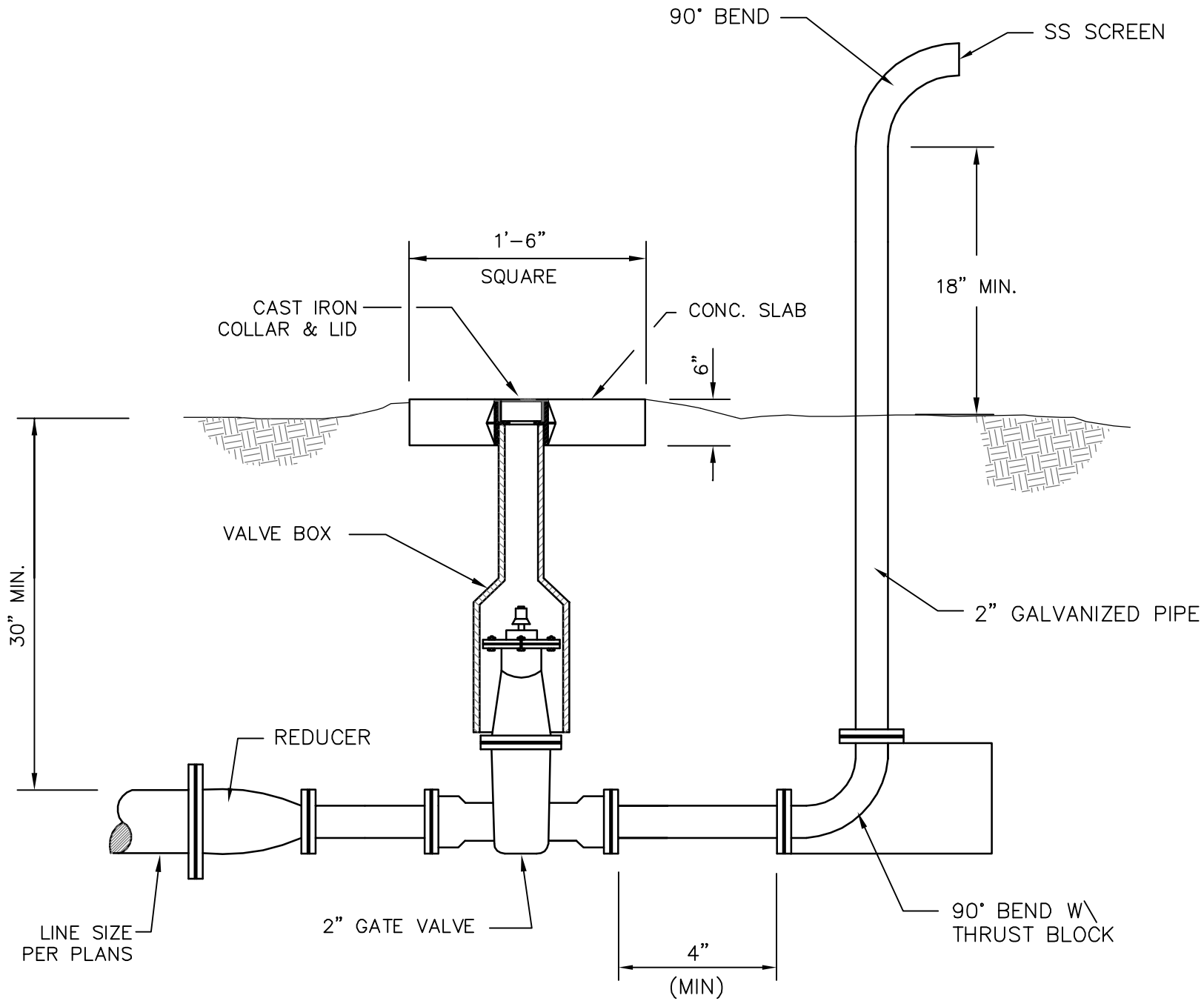
**TYPICAL METER SETTING WITH YOKE
(PREFERRED)**



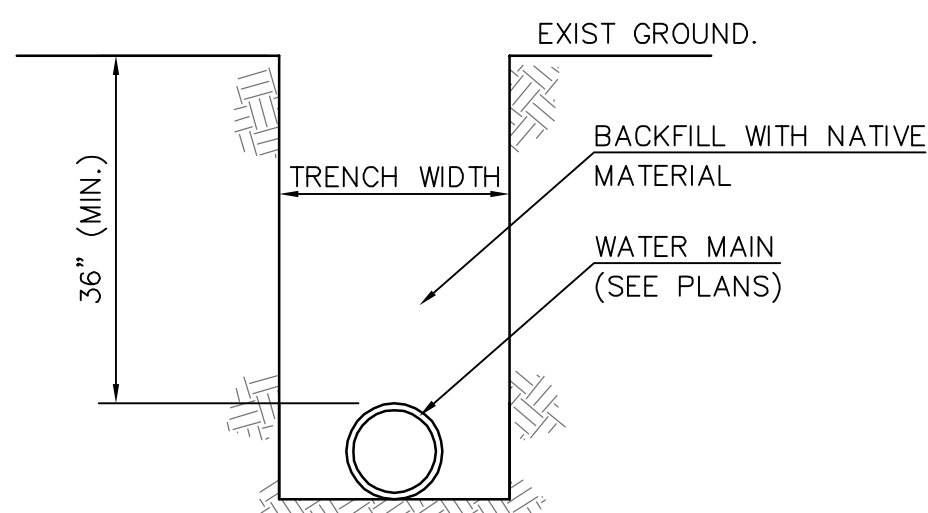
TYPICAL METER SETTING WITHOUT YOKE



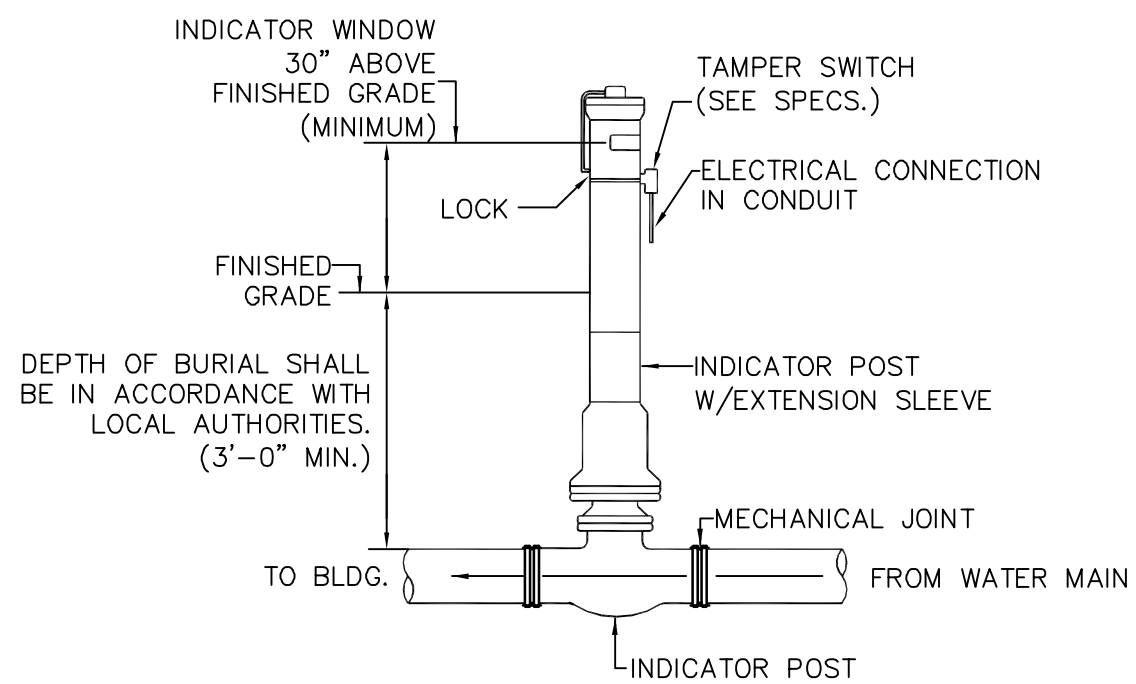
DETAIL OF VALVE & BOX



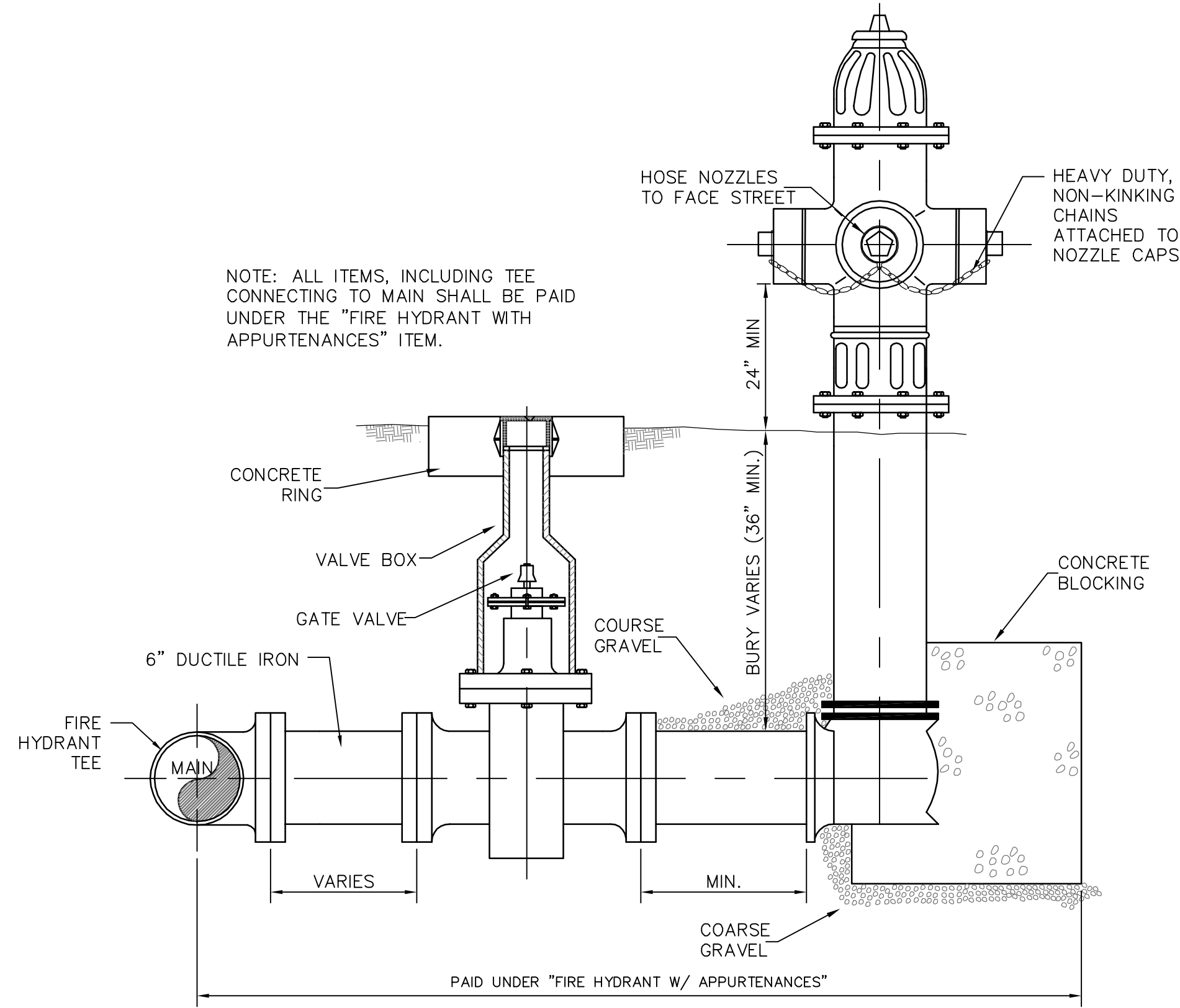
BLOW-OFF VALVE DETAIL



DETAIL OF TRENCH

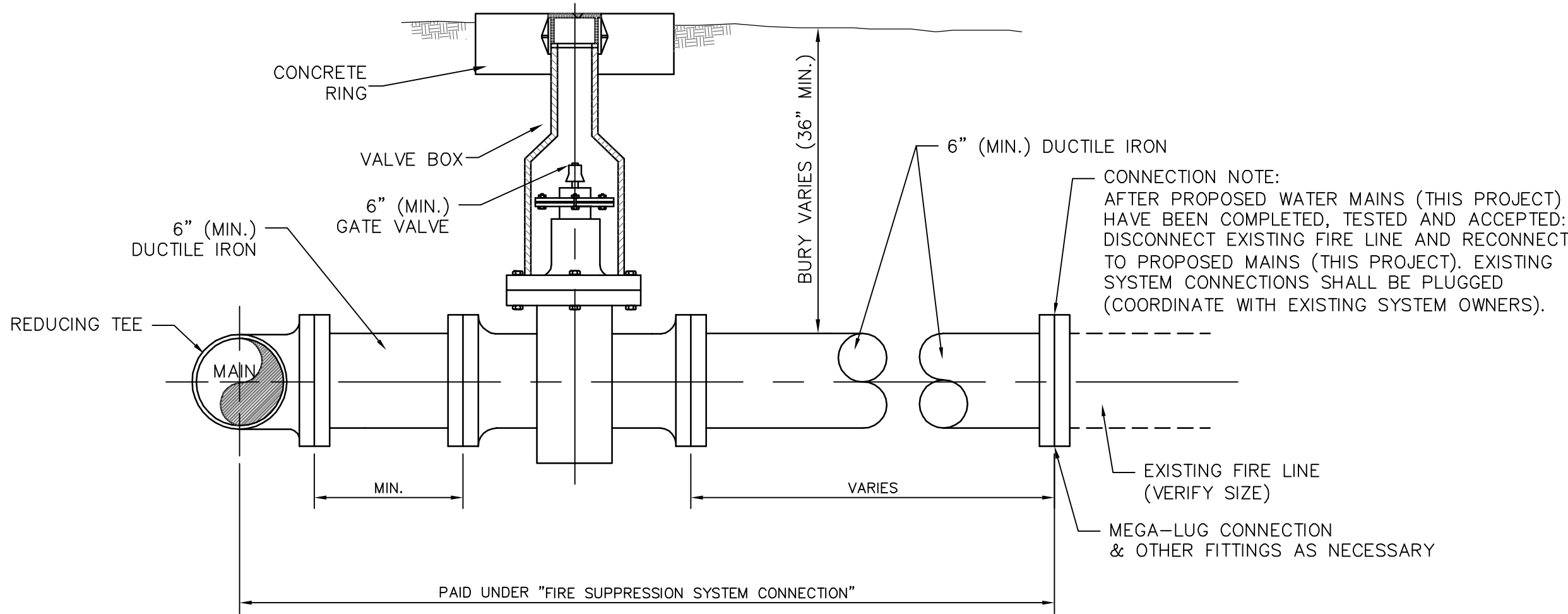


POST INDICATOR VALVE DETAIL



STANDARD 3-WAY FIRE HYDRANT

NOTE: ALL ITEMS, INCLUDING TEE CONNECTING TO MAIN, VALVE, PIPE, CONNECTION TO EXITING FIRE LINE AND DISCONNECTION OF EXISTING FIRE LINE FROM EXISTING SYSTEM MAIN SHALL BE PAID UNDER THE "FIRE SUPPRESSION SYSTEM CONNECTION" ITEM.

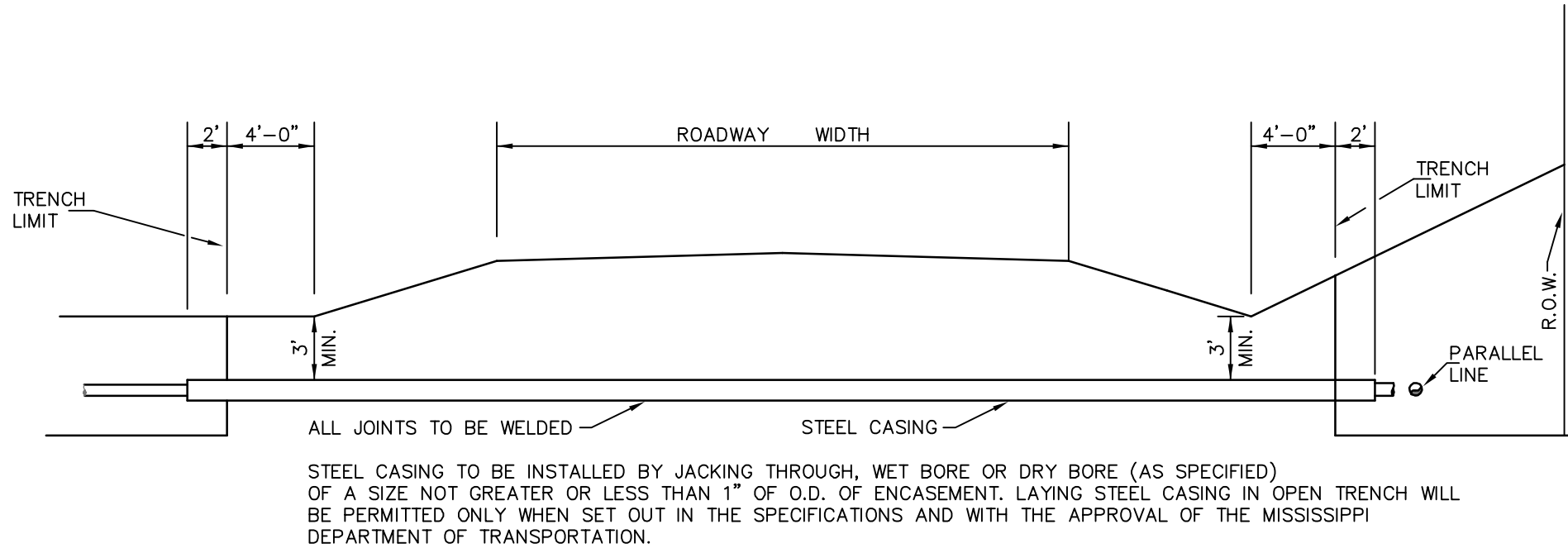


FIRE SUPPRESSION SYSTEM CONNECTION

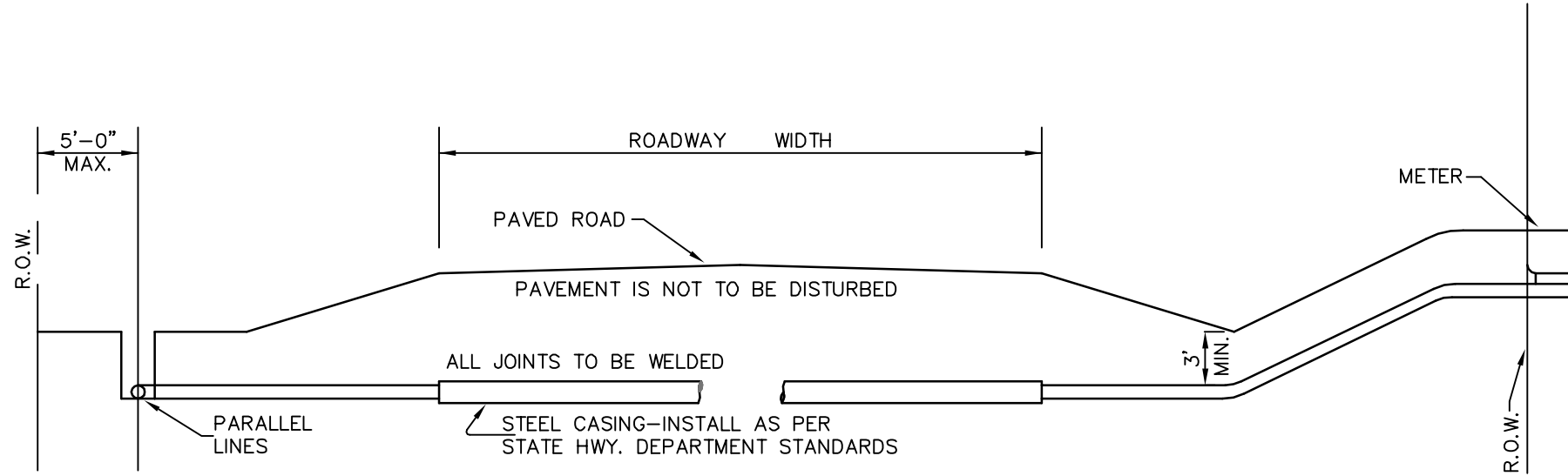
PIV NOTES:

1. POST INDICATOR VALVES SHALL BE REQUIRED AT ALL EXISTING STRUCTURES WHICH ARE BEING CONNECTED TO THE PROPOSED SYSTEM UNDER THIS PROJECT, IF THE EXISTING PIV IS DAMAGED AND/OR INOPERABLE OR IF NO PIV IS IN PLACE AT THE TIME OF CONNECTION.
2. LOCATIONS FOR PROPOSED PIV'S SHALL BE AS DIRECTED BY THE ENGINEER BUT SHALL BE AT LEAST 40 FEET FROM THE EXISTING STRUCTURE AND CLEARLY VISIBLE.
3. POST INDICATOR VALVES SHALL BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS AND AS DETAILED HERE.
4. ALL ITEMS, INCLUDING POSSIBLE INSTALLATION ON EXISTING FIRE LINE SHALL BE PAID UNDER THE "POST INDICATOR VALVE" ITEM.

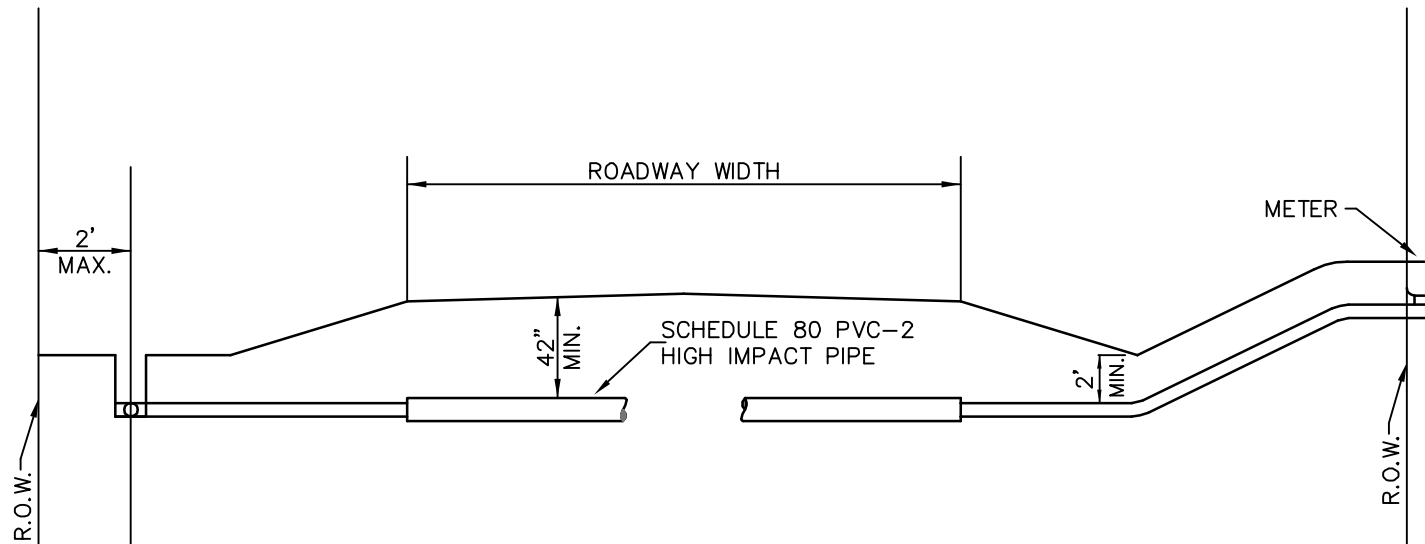
NO.	DATE	DESCRIPTION	BY
WATER INSTALLATION DETAILS			
INFRASTRUCTURE REHABILITATION			
CITY OF HATTIESBURG			
FORREST COUNTY, MISSISSIPPI			
sdw Engineering Progress			
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Date:	05-04-2018	Working No.:	WTRD1
Drawing No.:	11258	Sheet No.:	13



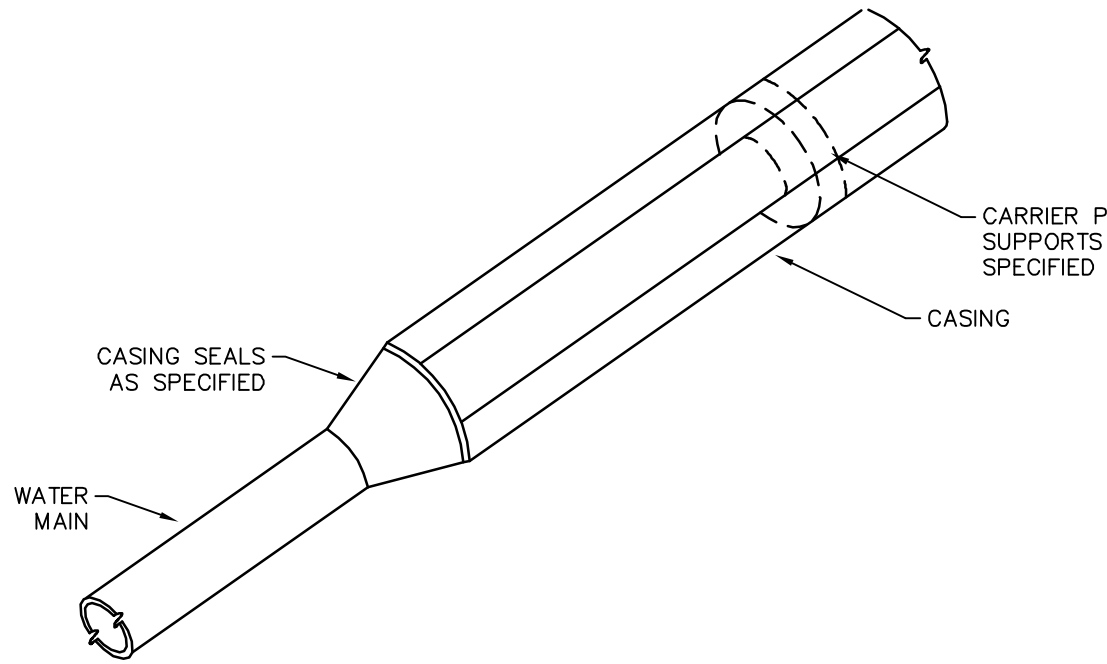
HIGHWAY CROSSING & WATER LINE PARALLELING HWY. IN R.O.W.



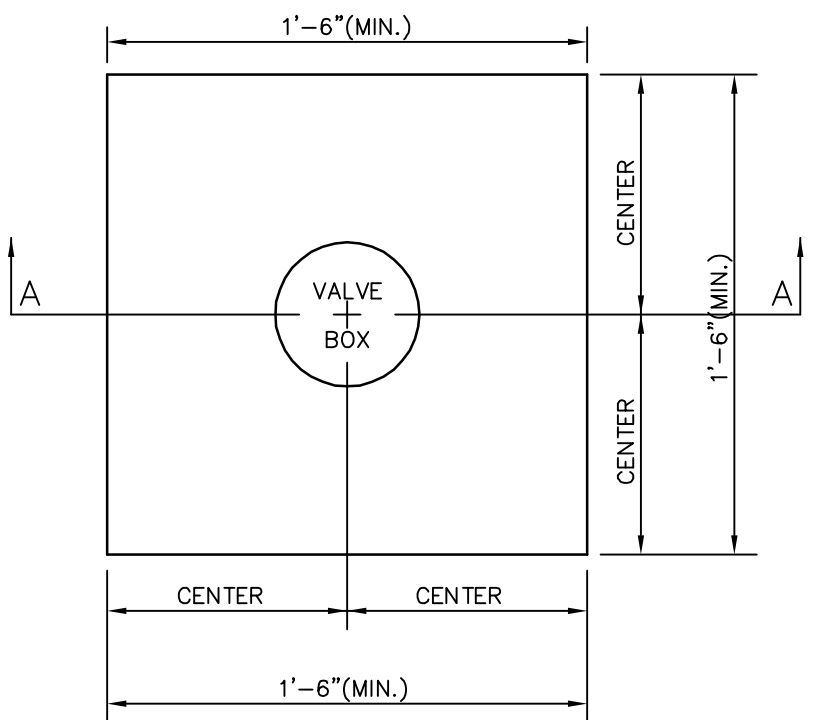
ROAD BORE & WATER LINE PARALLELING ROAD IN R.O.W.



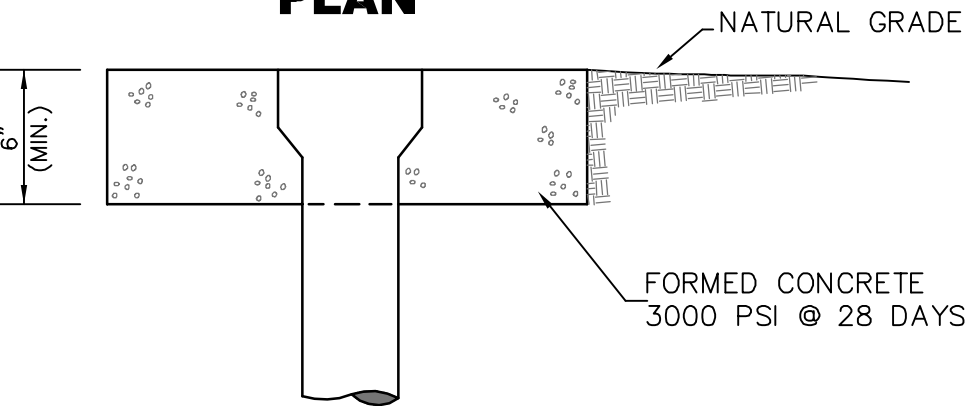
COUNTY GRAVEL ROAD & WATER LINE PARALLELING ROAD IN R.O.W.



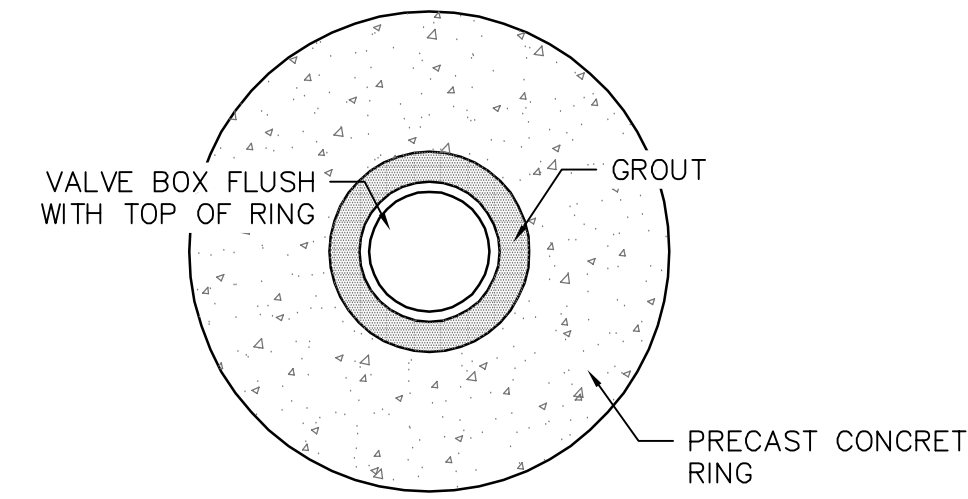
CASING END DETAIL



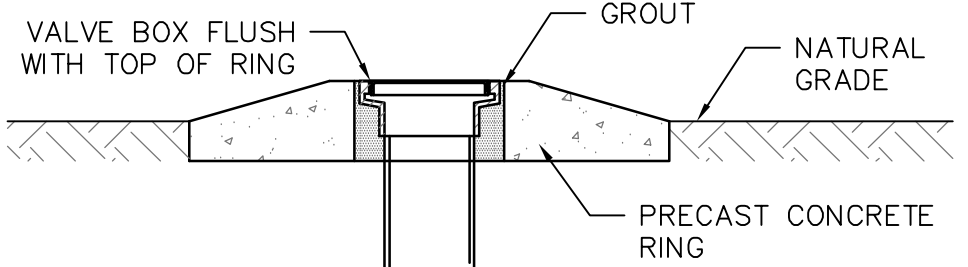
PLAN



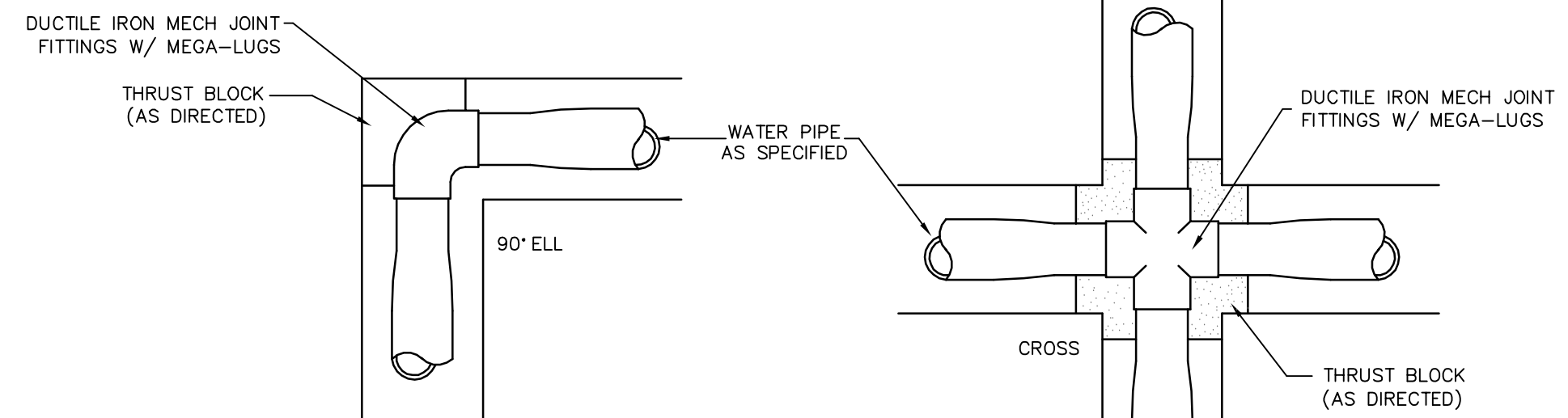
SECTION VALVE LOCATION (PAVED AREA)



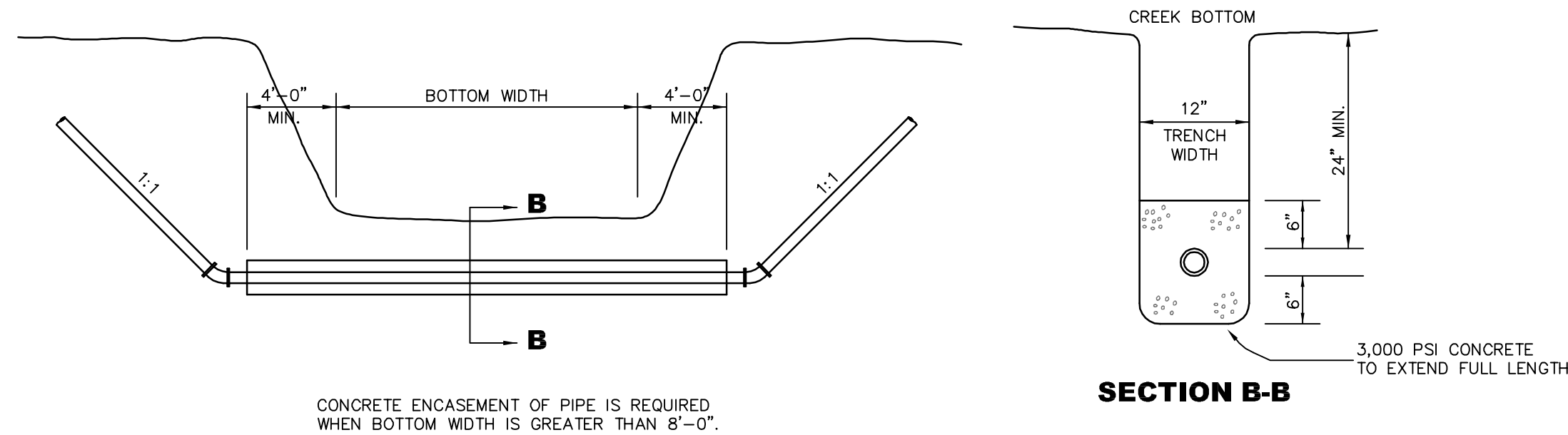
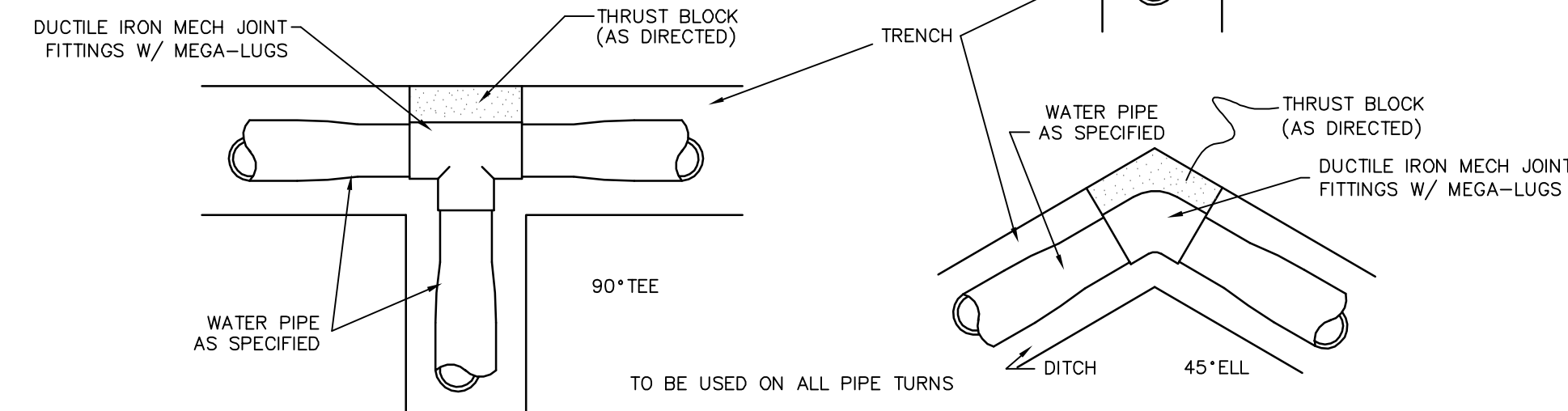
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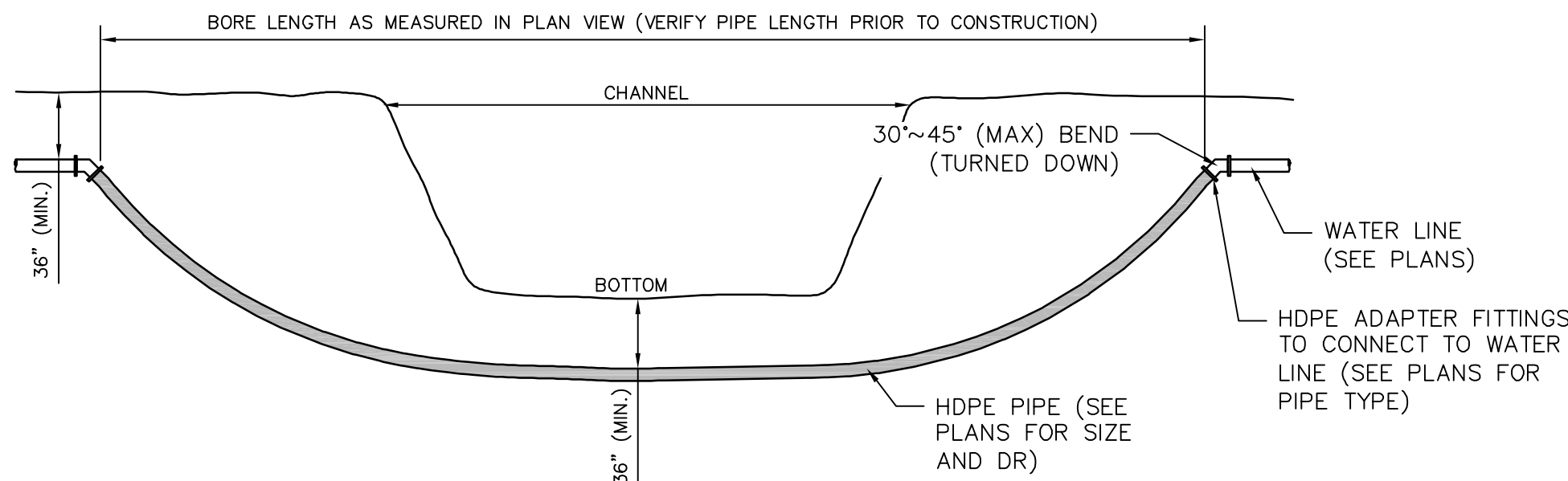
SECTION VALVE LOCATION (NON PAVED AREA)



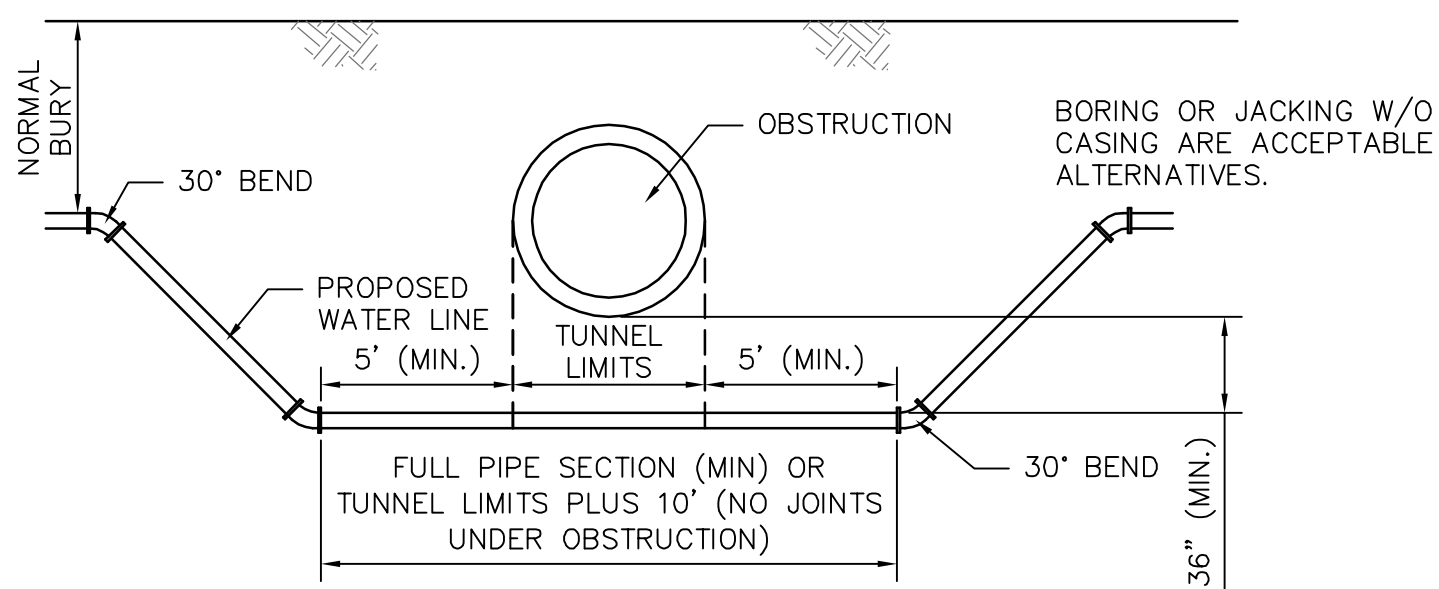
THRUST BLOCK DETAILS



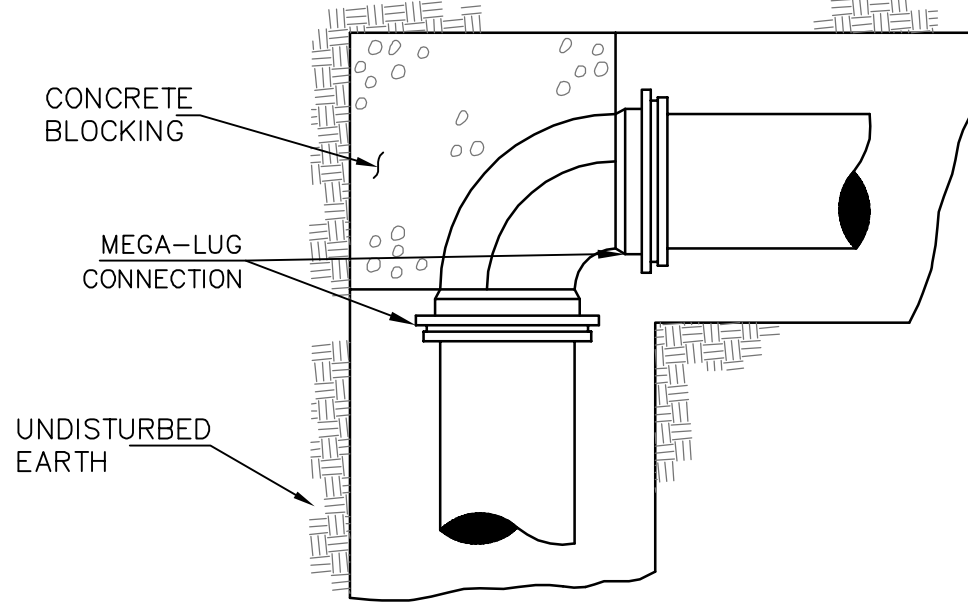
OPEN CUT CHANNEL CROSSING DETAIL



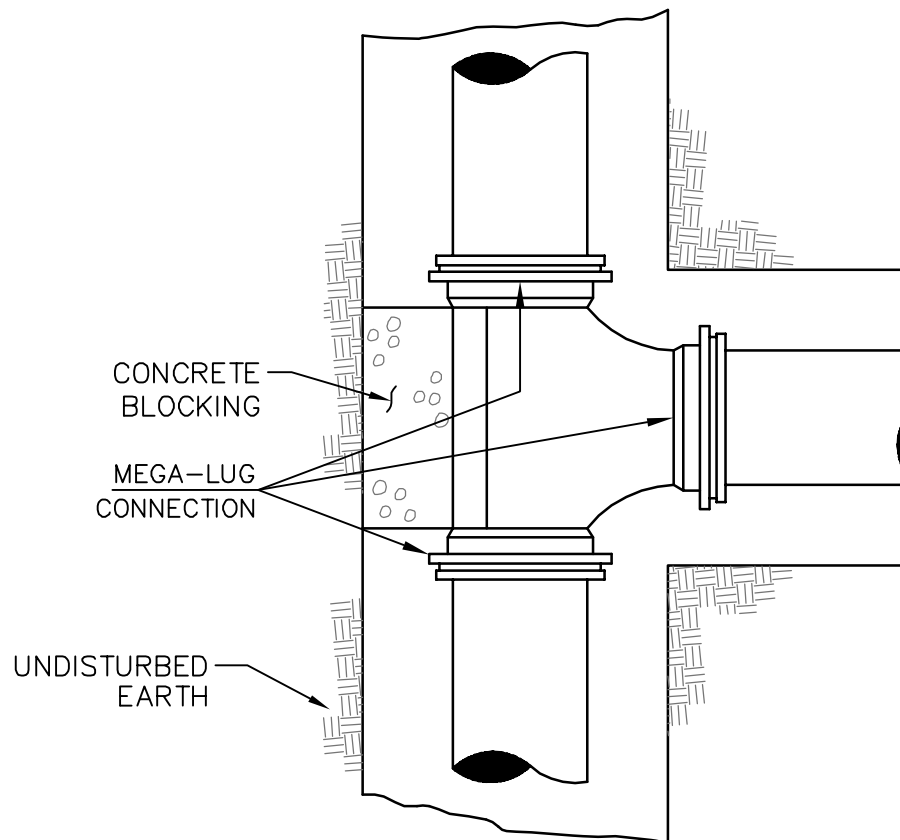
DIRECTIONAL BORED CHANNEL CROSSING DETAIL



OBSTRUCTION CROSSING DETAIL

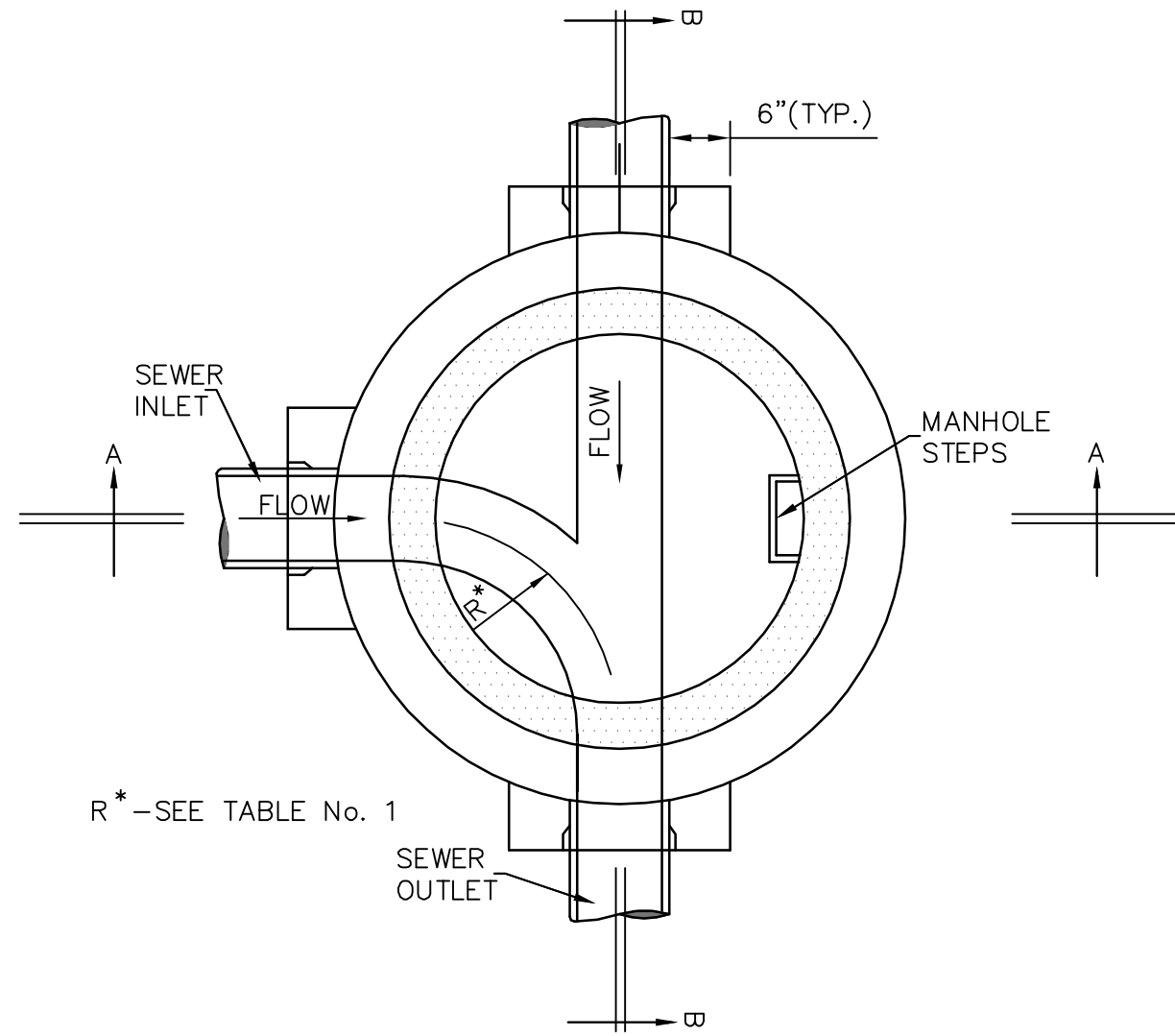


PLAN



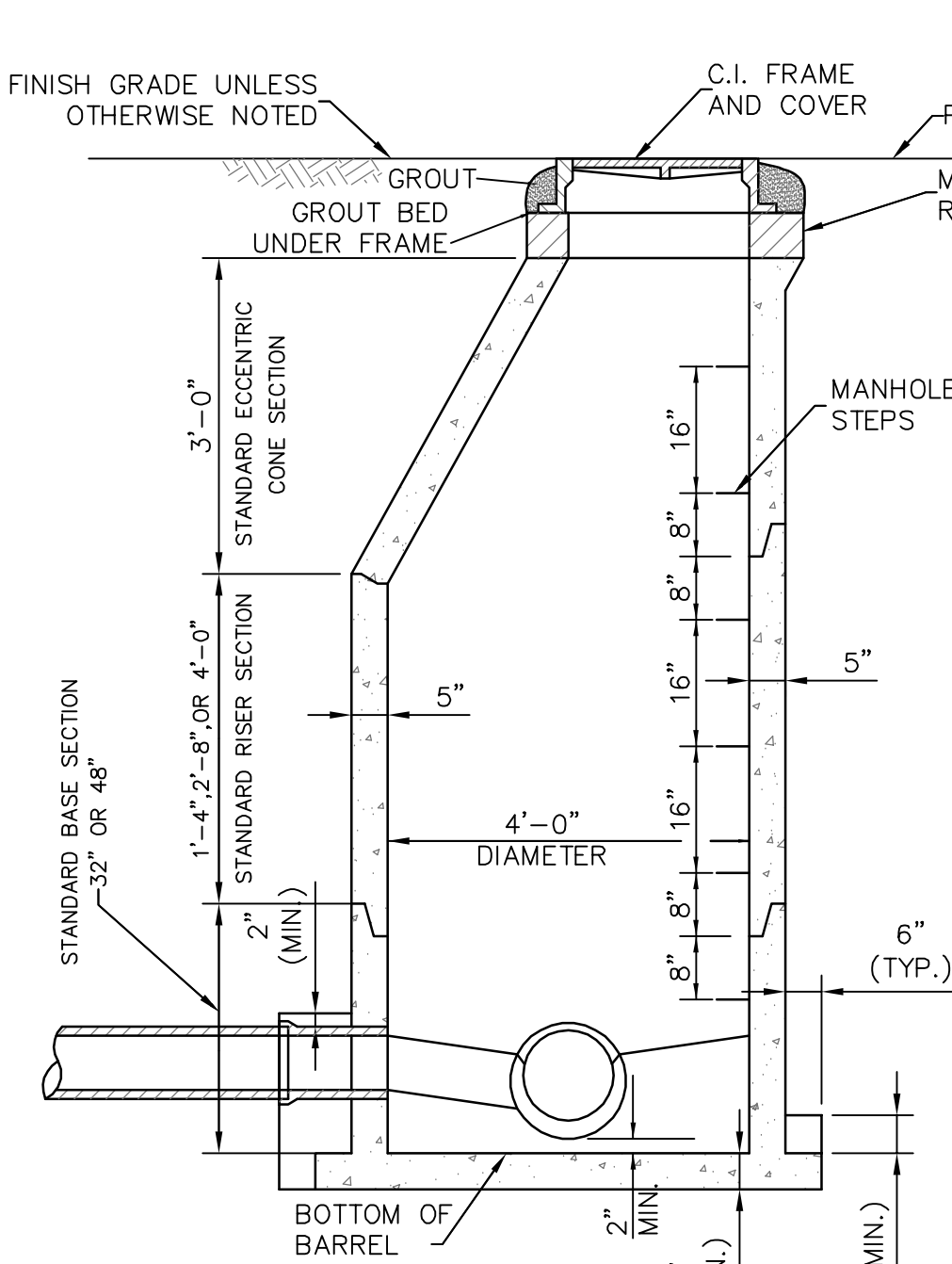
PLAN

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WATER INSTALLATION DETAILS			
INFRASTRUCTURE REHABILITATION			
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Date: 05-04-2018		Working No. WTRD2	
Drawing No.: 11258		Sheet No. 14	

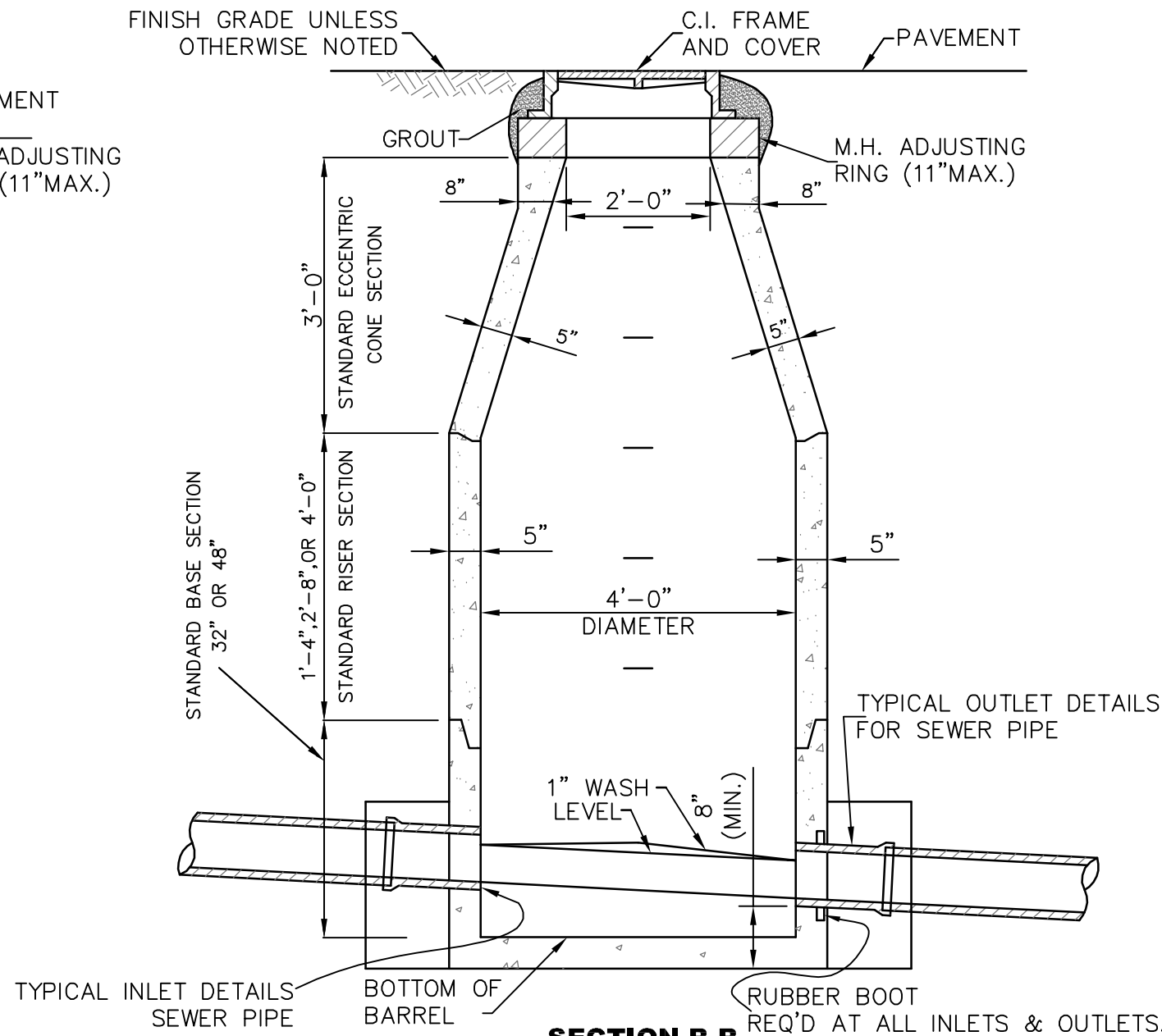


SECTIONAL PLAN
STANDARD PRECAST 4'-0" DIAMETER MANHOLE

NOTE: 5'-0" & 6'-0" DIAMETER MANHOLE MAY BE SIMILAR DESIGN IF APPROVED BY THE ENGINEER. SHOWN WITH CLAY OR CONCRETE PIPE

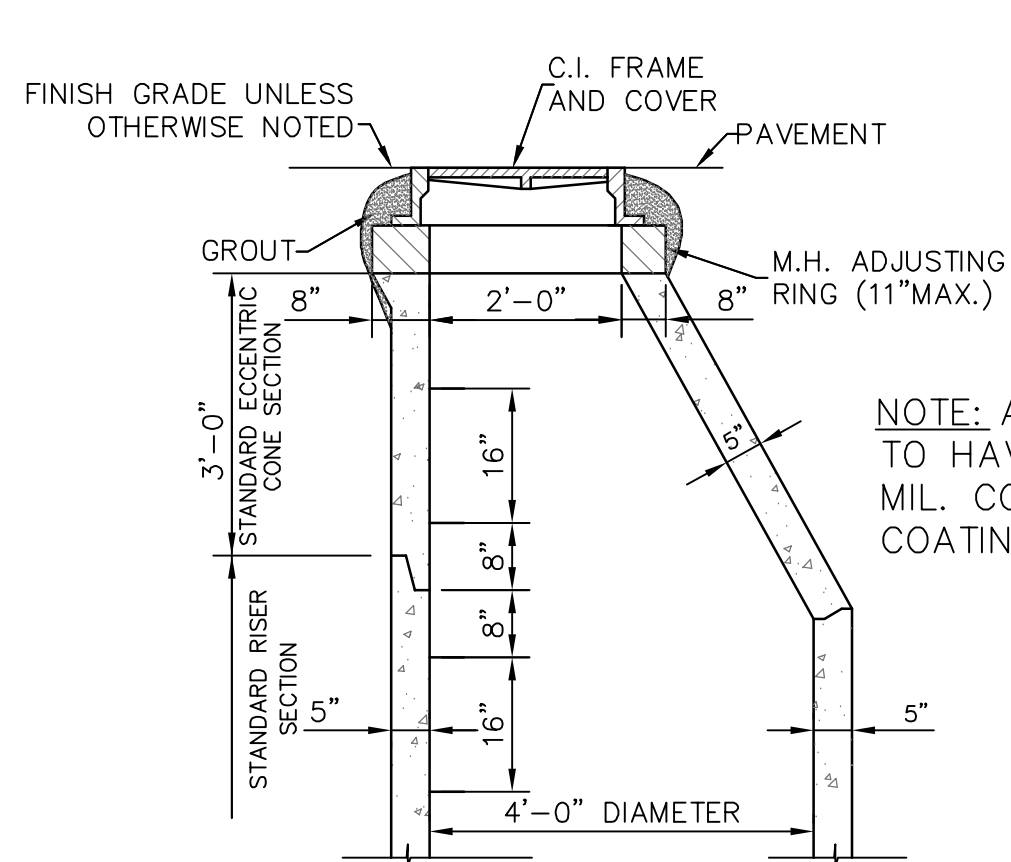


SECTION A-A
SHOWN WITH MANHOLE BOTTOM-PRECAST



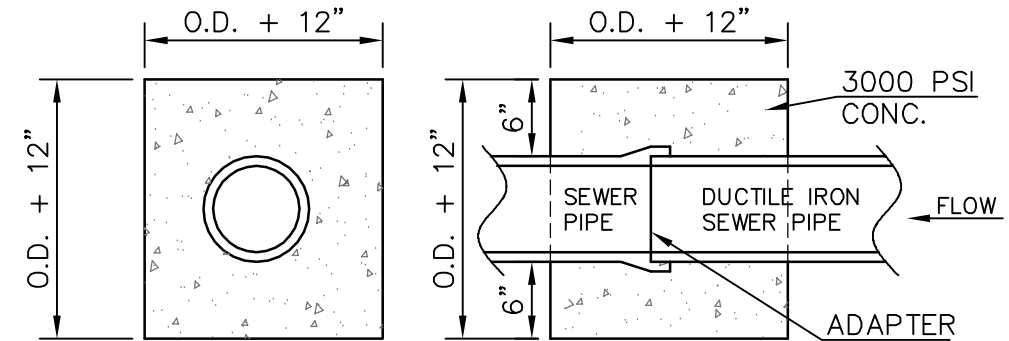
SECTION B-B
SHOWN WITH MANHOLE BOTTOM CAST-IN-PLACE

NOTE: CAST-IN-PLACE MANHOLE BOTTOMS SHALL HAVE #4 BARS 12" O.C.E.W. 4" ABOVE BOTTOM OF SLAB EXTENDING TO 3" OF EDGE OF SLAB. CAST-IN-PLACE BOTTOMS SHALL BE A MIN. OF 8" THICK.



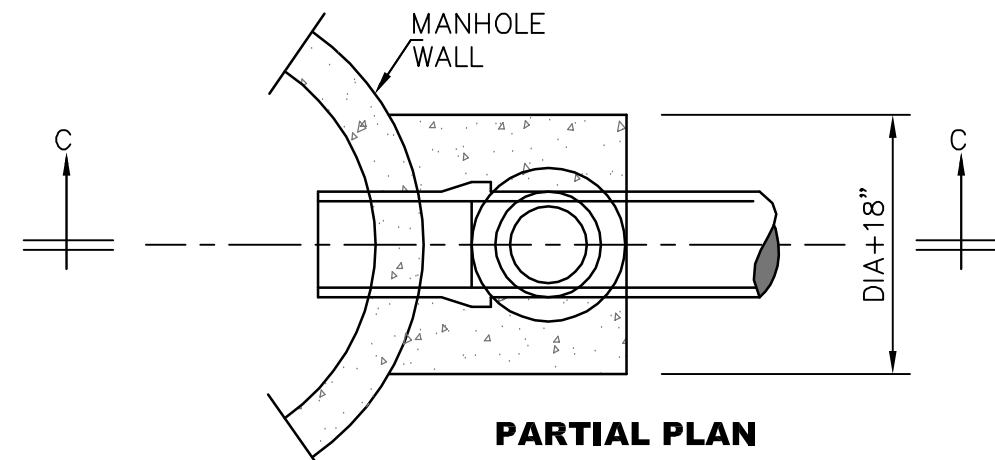
STANDARD ECCENTRIC CONE
FOR ALL DIAMETER MANHOLES

NOTE: DETAILS FOR RISER & BASE SECTIONS ARE SAME AS SHOWN IN SECTION A-A & B-B.



TYPICAL SEWER PIPE
CONNECTION TO SAME SIZE
DUCTILE IRON SEWER PIPE

NOTE: DROP MANHOLE ASSEMBLY TO BE FORMED AND POURED USING 3,000psi CONC.



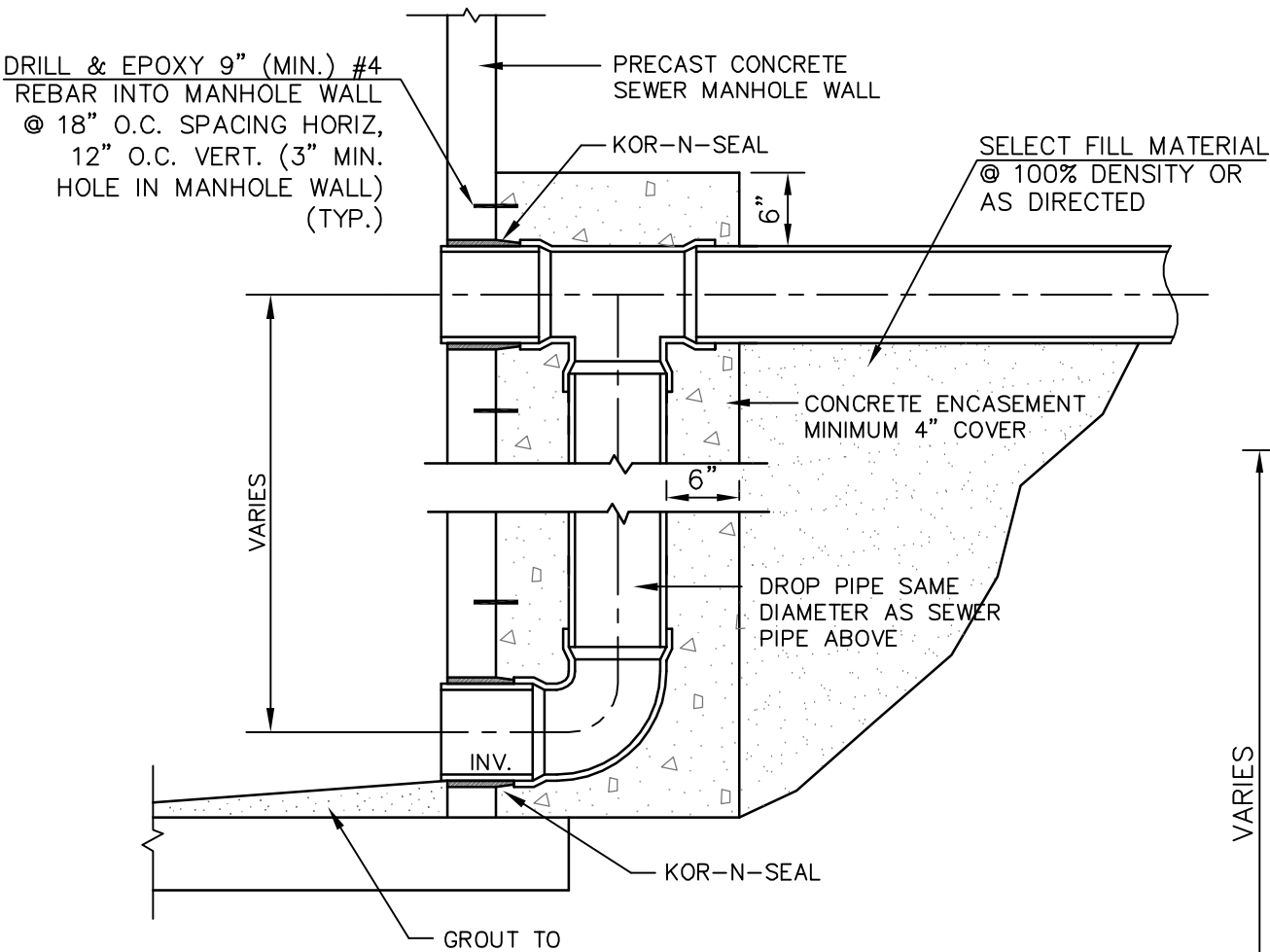
TYPICAL DROP MANHOLE ASSEMBLY

NOTE:

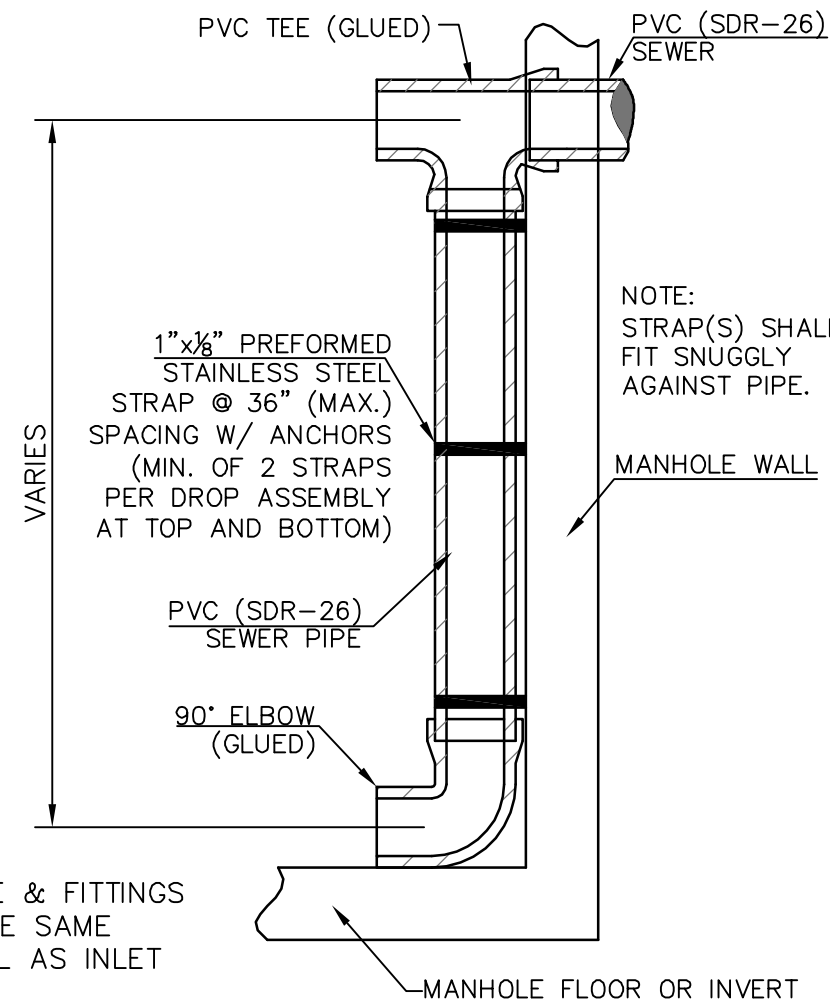
ALL MANHOLES SHALL BE STANDARD PRECAST WITH EXTENDED BASES, UNLESS OTHERWISE DIRECTED. FLEXIBLE INLET AND OUTLET CONNECTION BOOTS REQUIRED ON ALL PIPES AND FORCE MAINS.

TABLE NO. 1 GOVERNING DIMENSIONS FOR MANHOLES				
PIPE SIZE	Ø ANGLE	MIN. BASE DIAMETER	"R"*	
8" THRU 12"	0° TO 90°	4'	1'-6"	
15"	0° TO 60°	5'	1'-10"	
15"	60° TO 90°	5'	1'-10"	
18"	0° TO 90°	5'	2'-3"	
18"	60° TO 90°	5'	1'-10"	
21"	0° TO 90°	5'	2'-7"	
21"	60° TO 90°	5'	2'-4"	
24"	0° TO 45°	6'	3'-0"	
24"	45° TO 90°	6'	2'-3"	
30"	0° TO 60°	6'	3'-9"	
30"	60° TO 90°	6'	2'-8"	
36"	0° TO 30°	7'	4'-6"	
36" AND LARGER	0° TO 90°	CAST IN PLACE MANHOLE BASE OR PRE-BED PIPE M.H. BASE AND ELBOW UNITS.		

* SEE SECTIONAL PLAN, STD. PRECAST MANHOLE



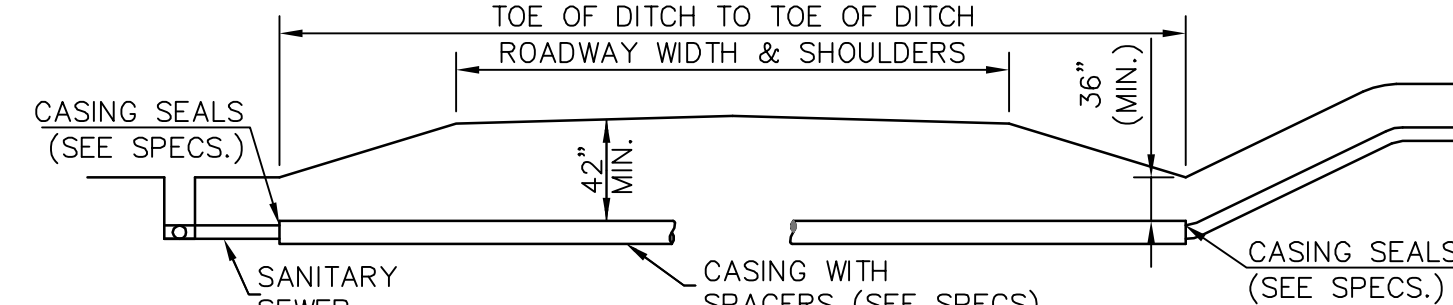
DETAIL "B"
SECTION C-C



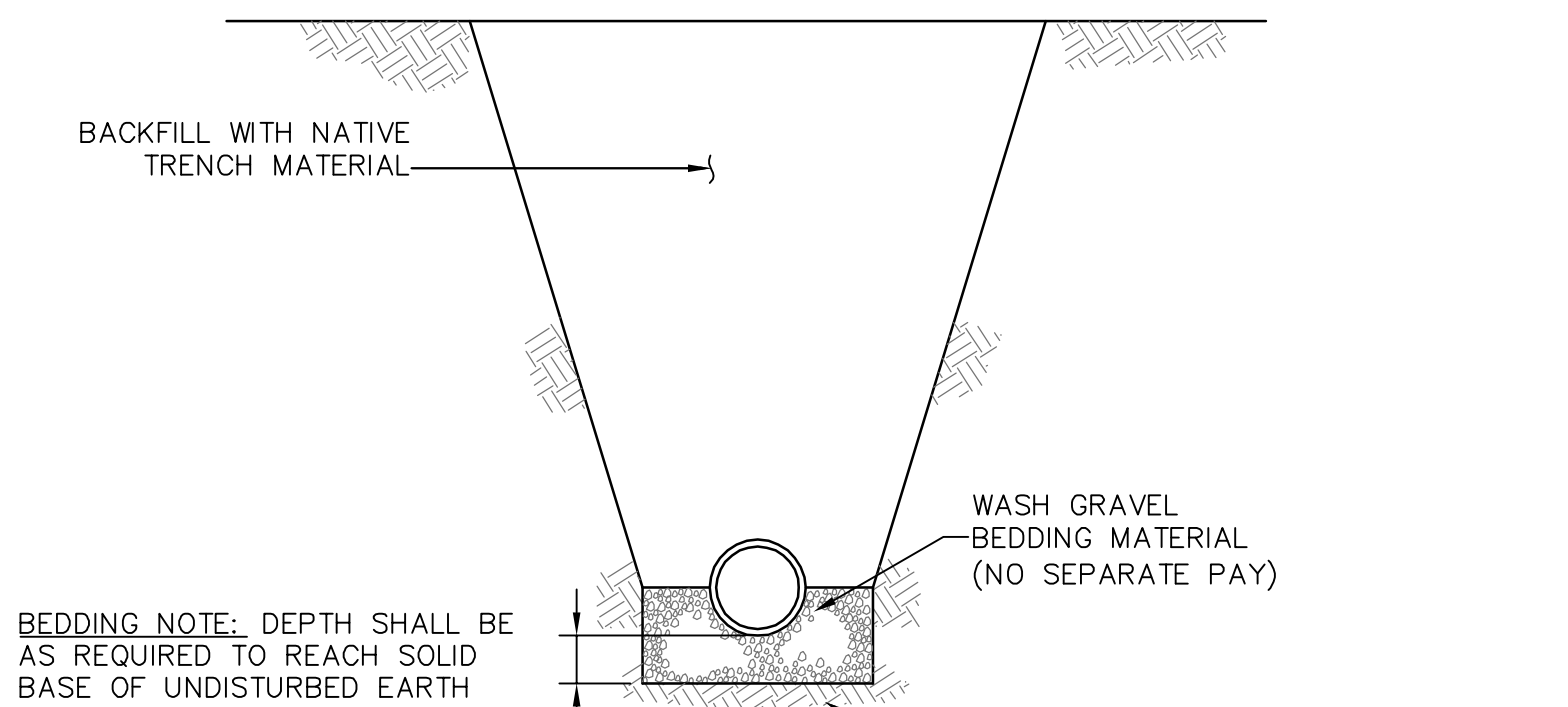
TYPICAL DROP MANHOLE ASSEMBLY

- NOTES:
1. USE DETAIL "A" ONLY WHERE SINGLE DROP ASSEMBLY IS REQ'D. FOR MULTIPLE DROPS USE DETAIL "B" SHOWN ELSEWHERE ON THIS SHEET FOR 48" MANHOLE. FOR MULTIPLE DROP ASSEMBLIES IN LARGER MANHOLES, DROPS SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
 2. ALL HARDWARE SHALL BE STAINLESS STEEL.
 3. ALL APPURTENANCES SHALL BE INCLUDED IN BID PRICE FOR DROP ASSEMBLIES.

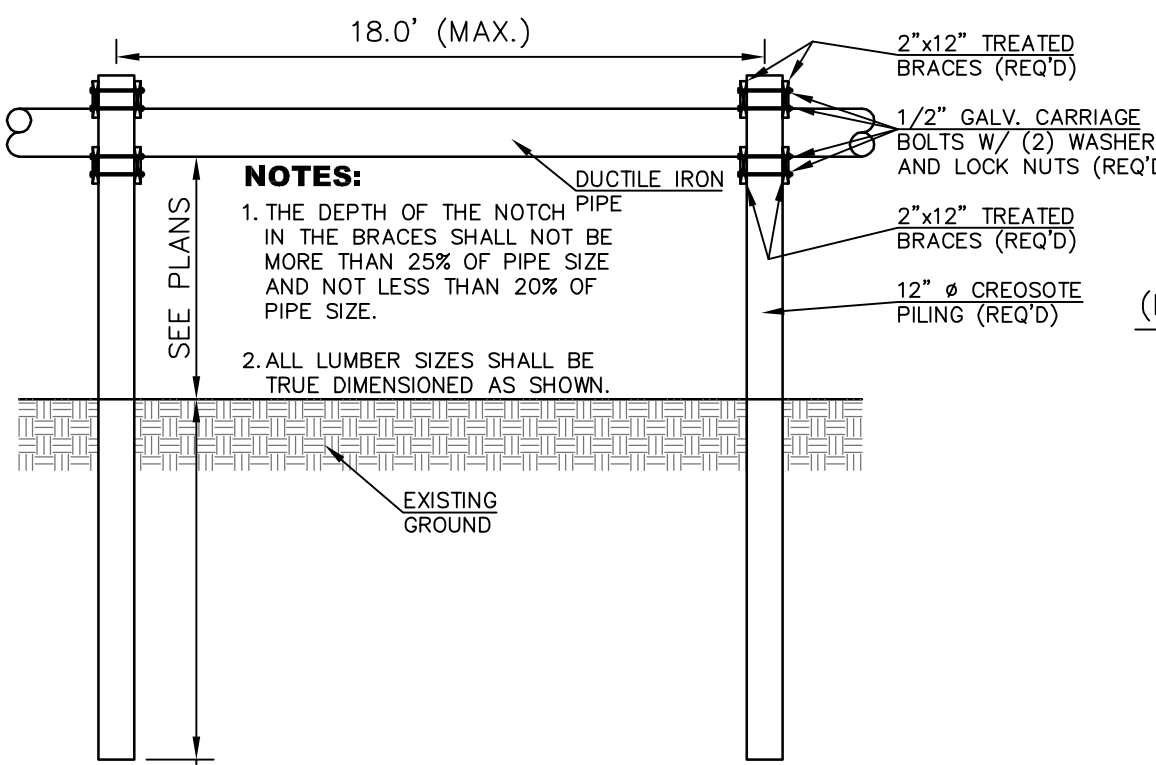
NOTE: ALL TESTING TO BE THE RESPONSIBILITY OF THE CONTRACTOR. (NO SEPARATE PAY)



ROAD BORE DETAIL

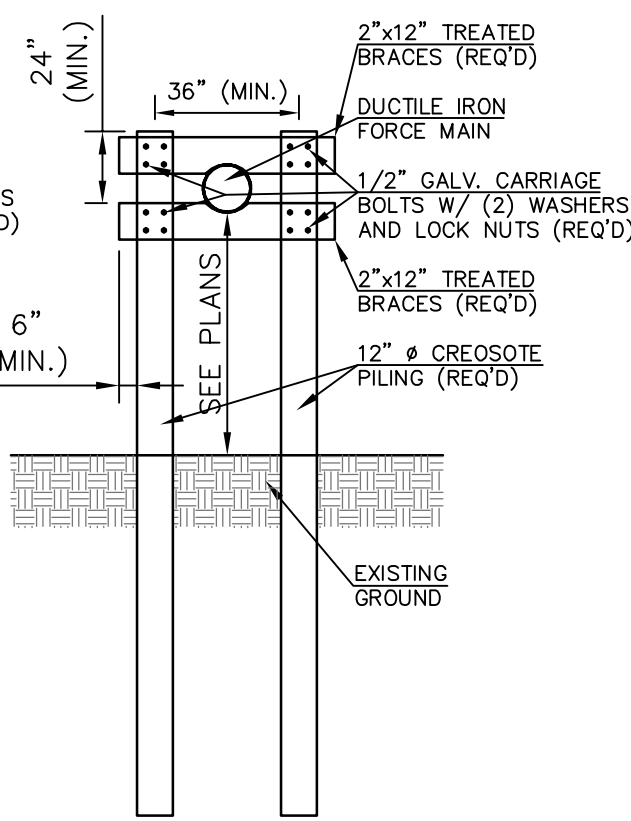


TYPICAL TRENCH DETAIL
(NON PAVED AREAS)



SIDE VIEW

TREATED WOOD PIPE PIERS

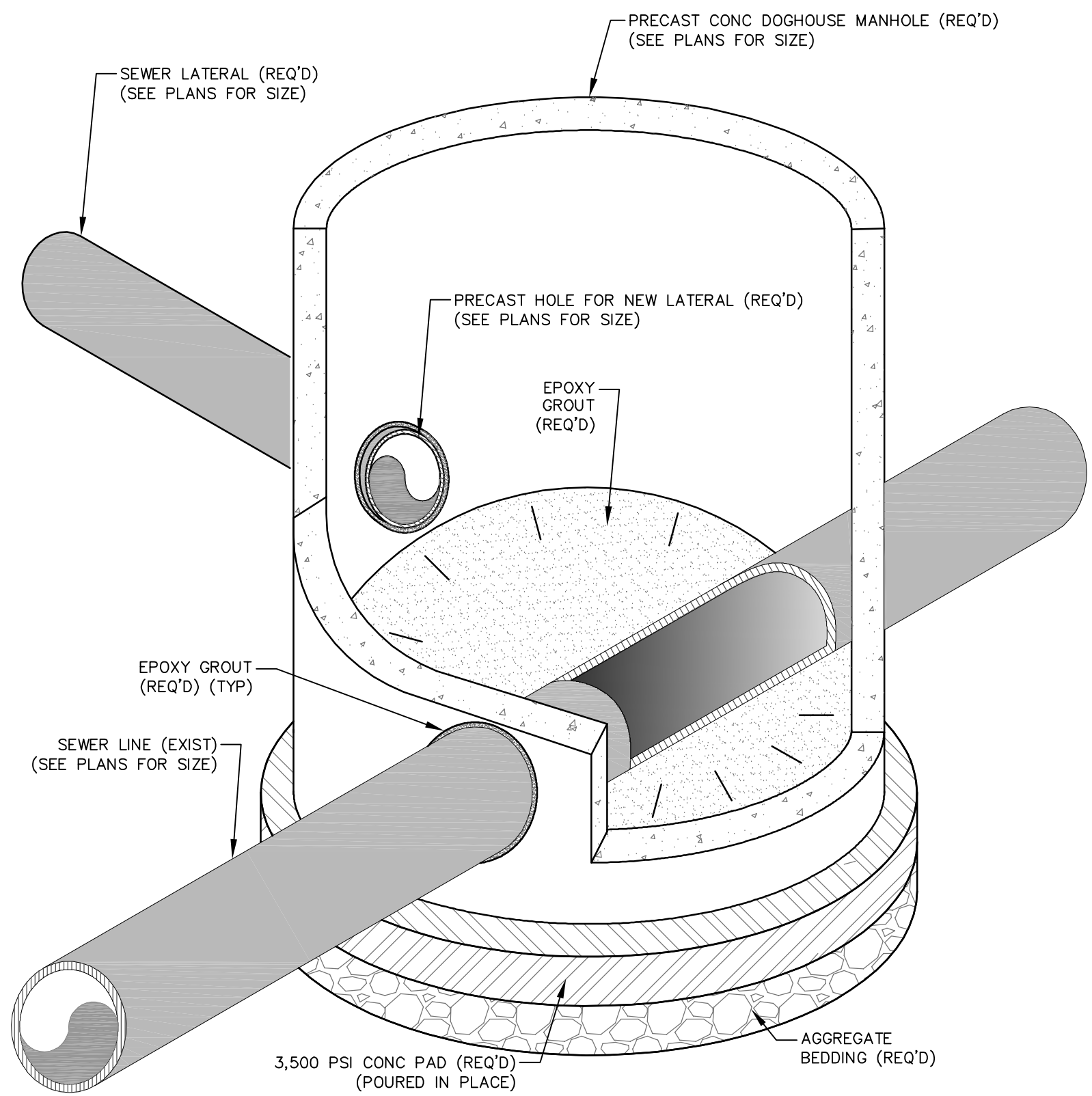


FRONT VIEW

GENERAL NOTES:

1. ALL ELEMENTS SHALL CONFORM TO PRECAST MANHOLE SPECIFICATION. A.S.T.M. C-478 LATEST REVISION.
2. PRECAST CONCRETE RINGS SHALL BE USED TO BRING MANHOLE FRAME AND COVER TO GRADE USE (11" MAX. RISE).
3. MANHOLES IN PAVED AREAS SHALL BE FURNISHED WITH ADJUSTING RINGS.

NO.	DATE	DESCRIPTION	BY
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FORREST COUNTY, MISSISSIPPI			
sdw Engineering Progress 301 Second Ave., Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by:	RES\BT	Checked by:	SEM
Date:	05-04-2018	Working No.:	SSD1
Drawing No.:	11258	Sheet No.:	15

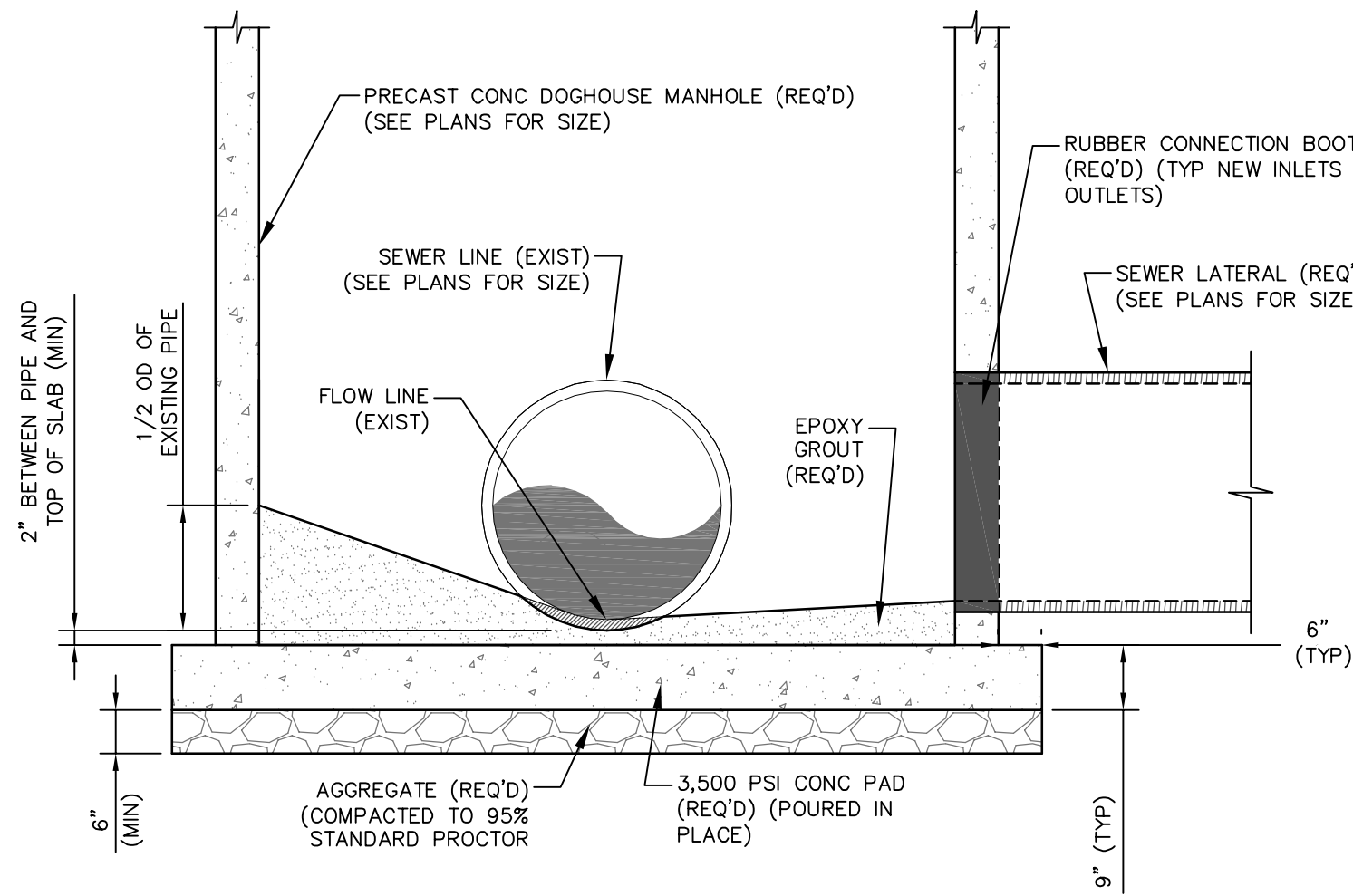


ISOMETRIC VIEW

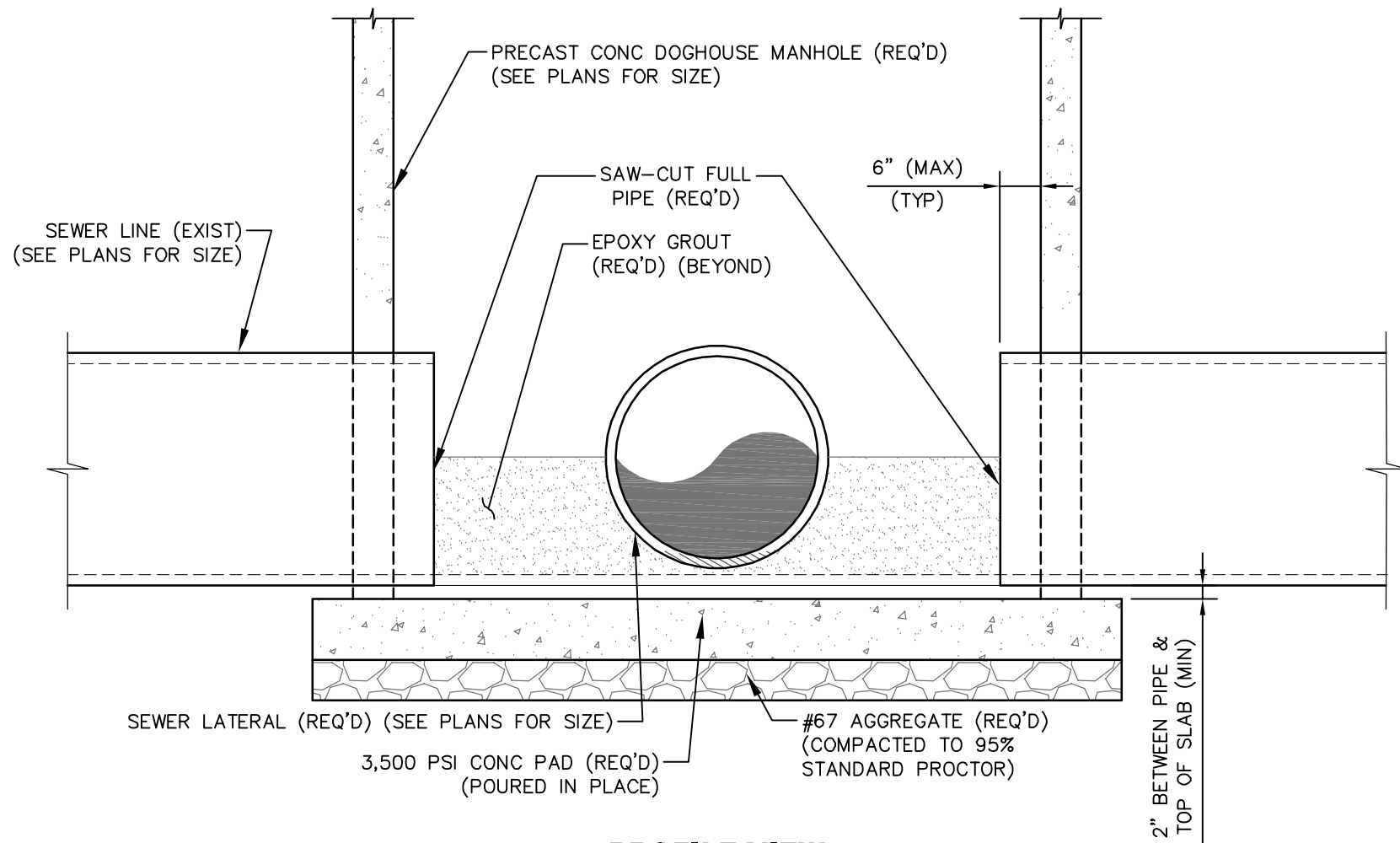
DOGHOUSE MANHOLE NOTES:

1. FLOW SHALL BE MAINTAINED DURING CONSTRUCTION.
2. THIS DETAIL SHALL BE USED WHEN A LATERAL NECESSITATES CONSTRUCTION OF A NEW MANHOLE.
3. CONCRETE MANHOLE PAD SHALL BE POURED IN PLACE AND SHALL BE POURED UPON A #67 AGGREGATE BEDDING.
4. AGGREGATE BEDDING SHALL HAVE A
5. ALL PARTS OF THE DOGHOUSE MANHOLE CONSTRUCTION, CONCRETE PAD, AGGREGATE BASE, GROUT, ETC, SHALL BE PAID UNDER DOGHOUSE' MANHOLE ITEM.

MINIMUM DEPTH OF 6" AND SHALL BE COMPACTED TO 95% STANDARD PROCTOR PRIOR TO CONSTRUCTION OF CONCRETE PAD.

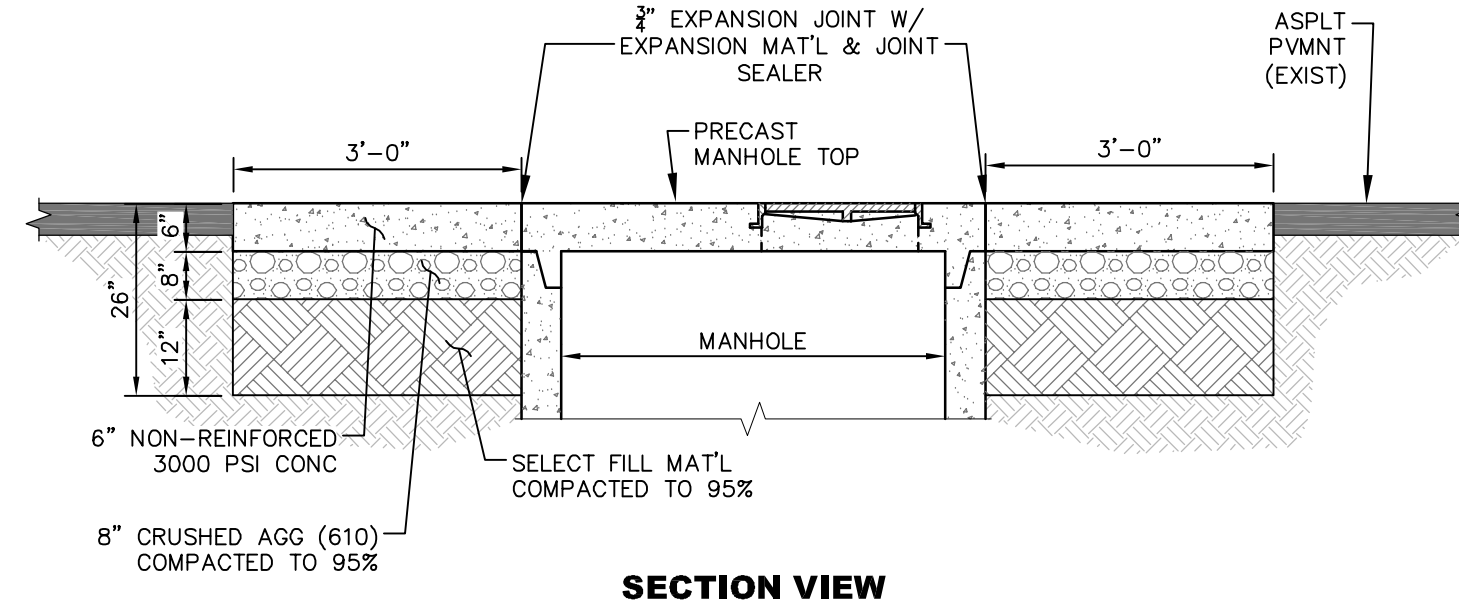


SECTION VIEW

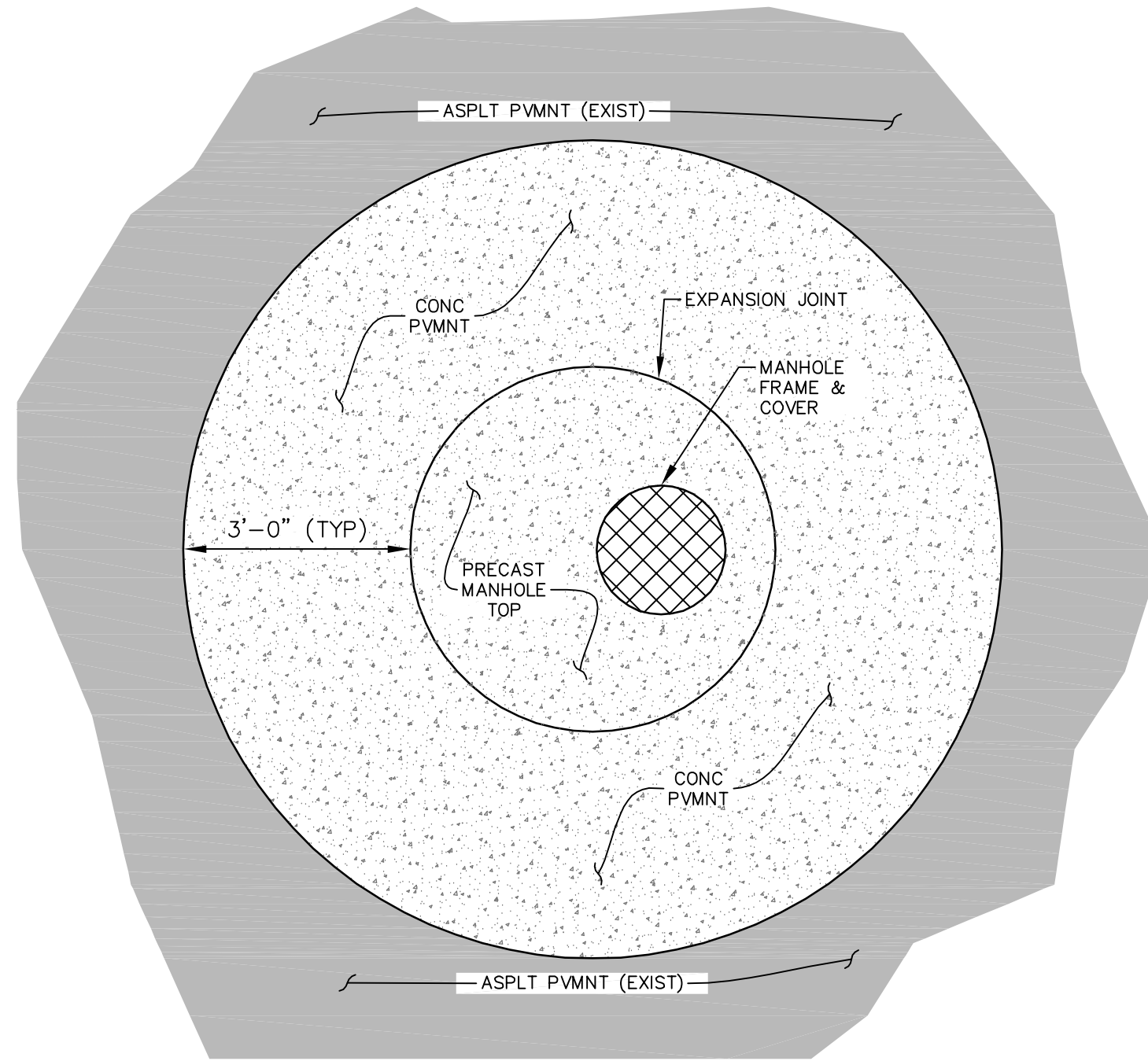


PROFILE VIEW

DOGHOUSE MANHOLE DETAIL

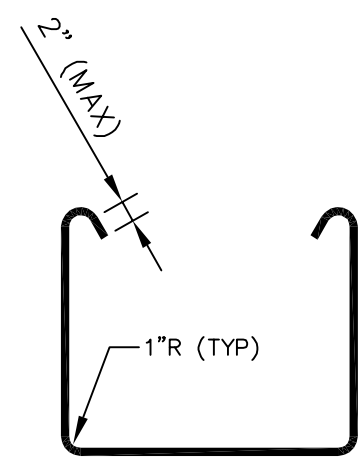


SECTION VIEW

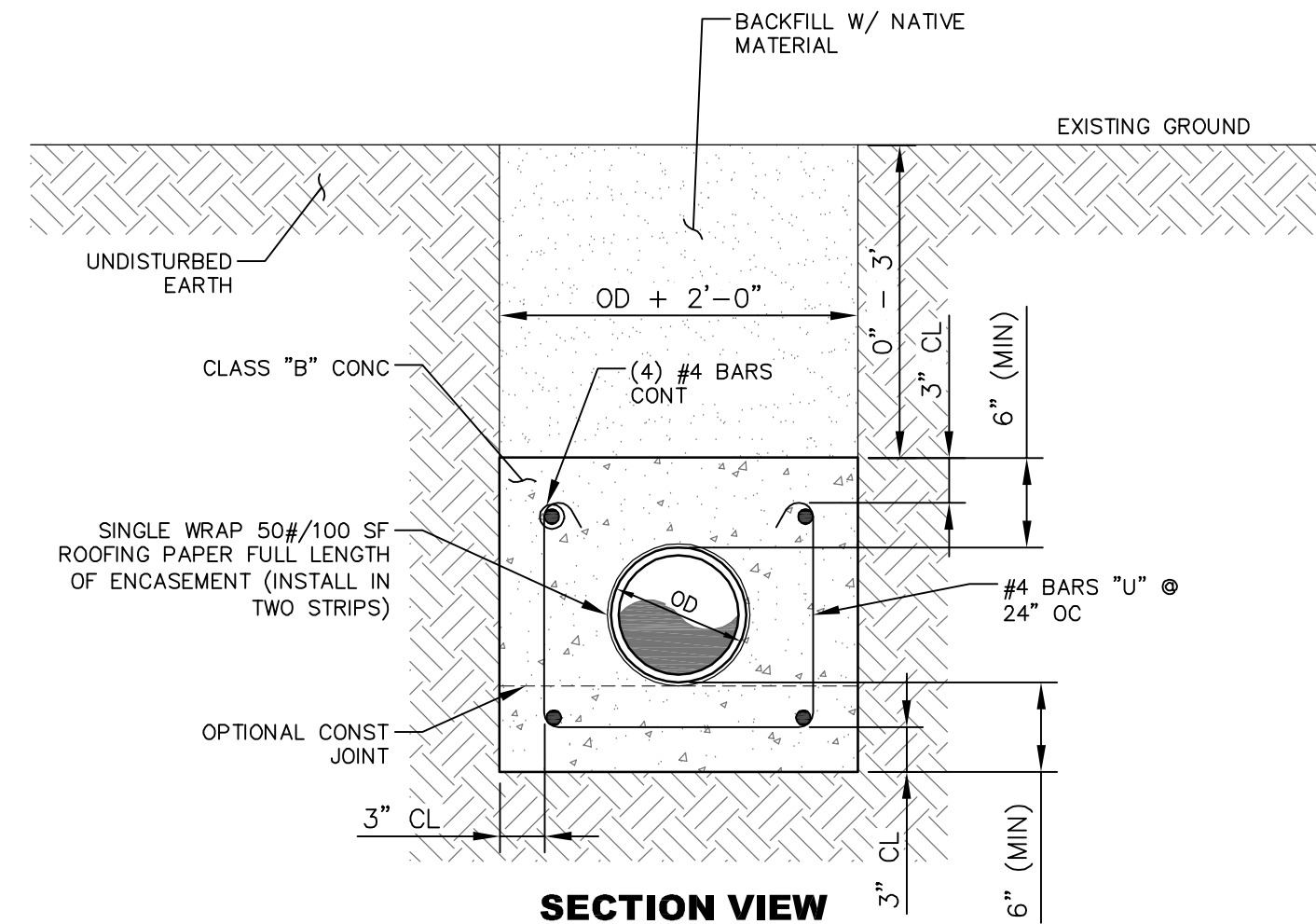


PLAN VIEW

TYPICAL ADDITIONAL PAVING DETAIL @ FLAT TOP MANHOLE

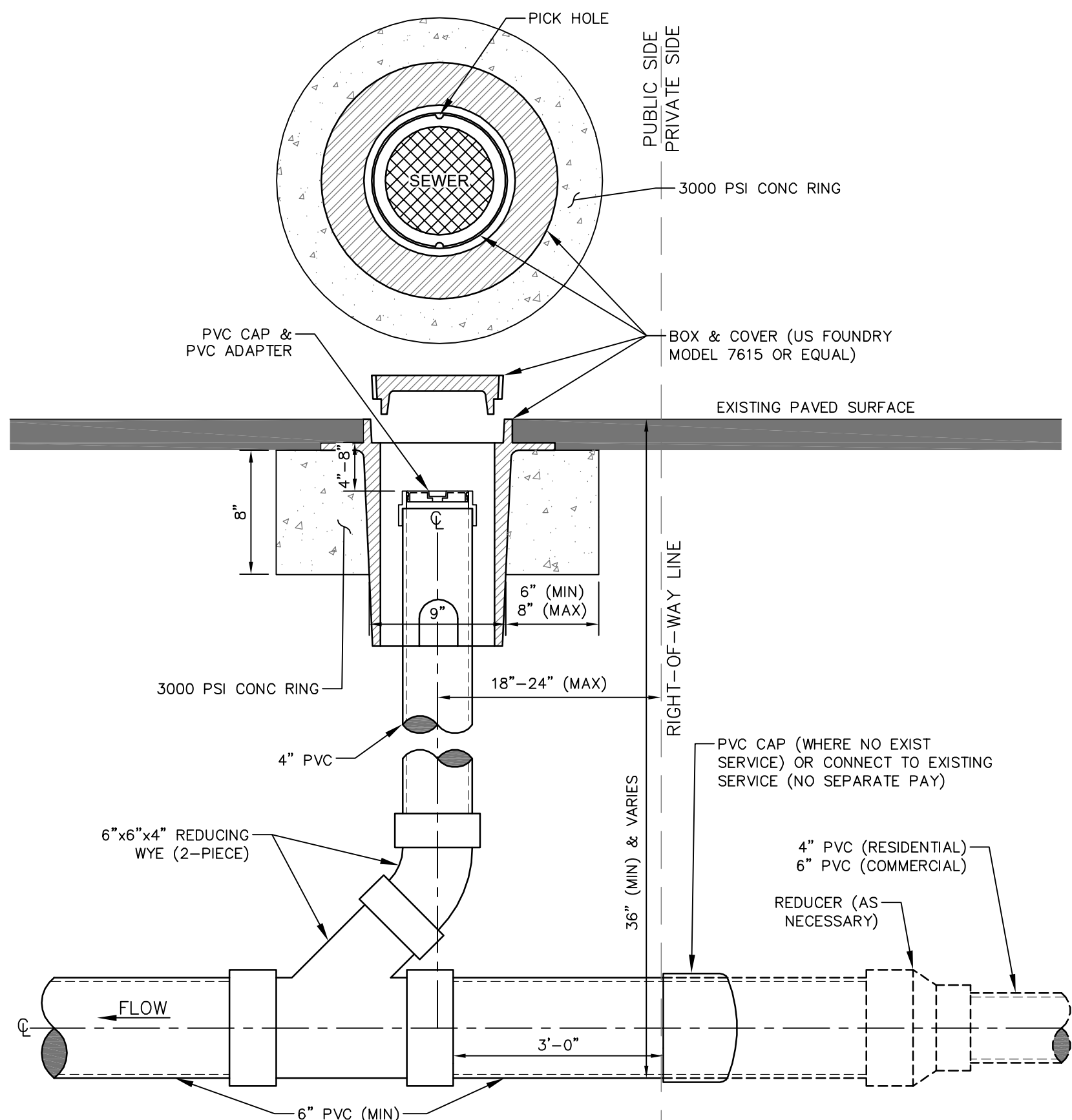


BAR "U" DETAIL



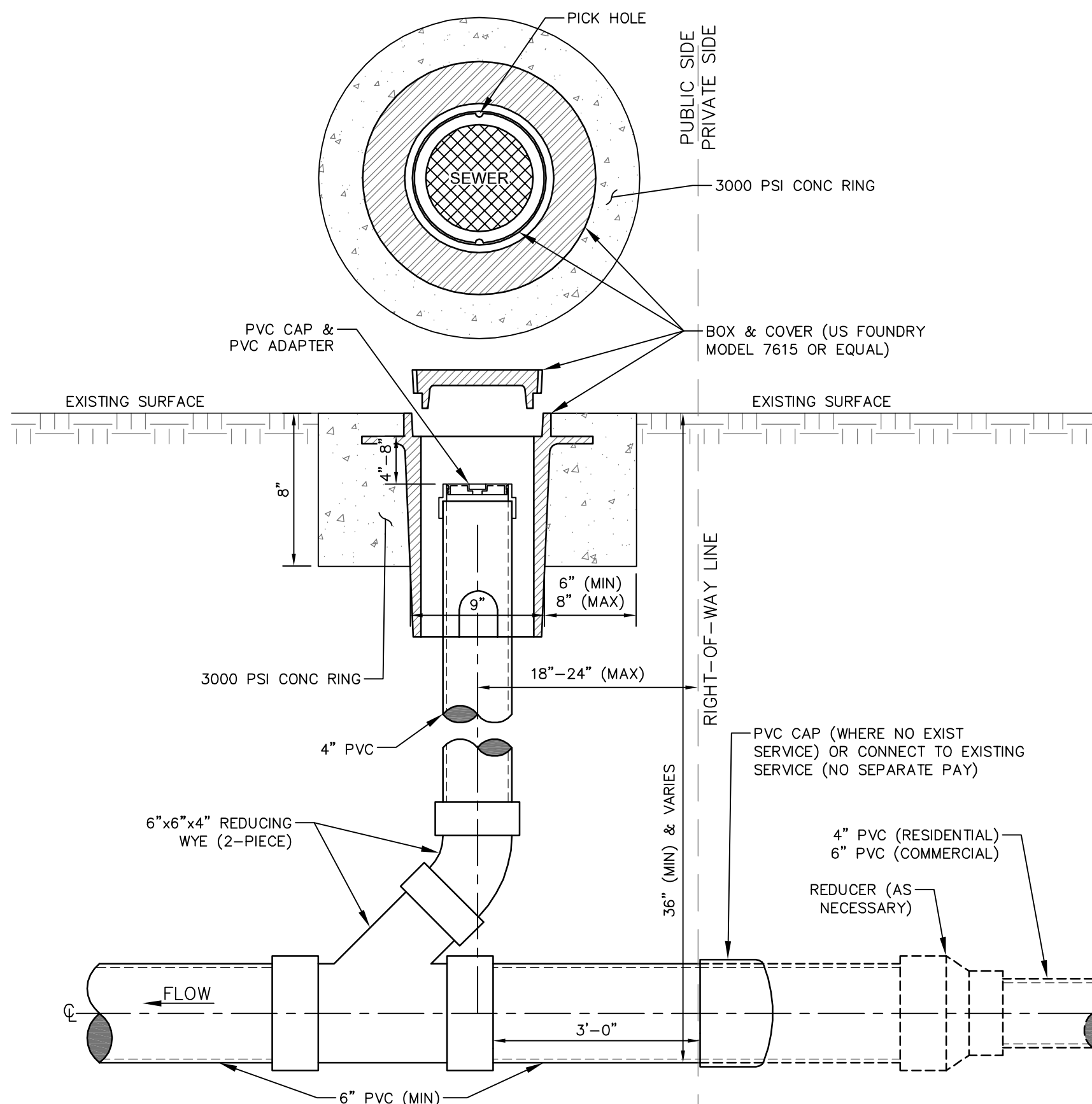
SECTION VIEW

CONCRETE ENCASEMENT FOR LOW COVER DETAIL



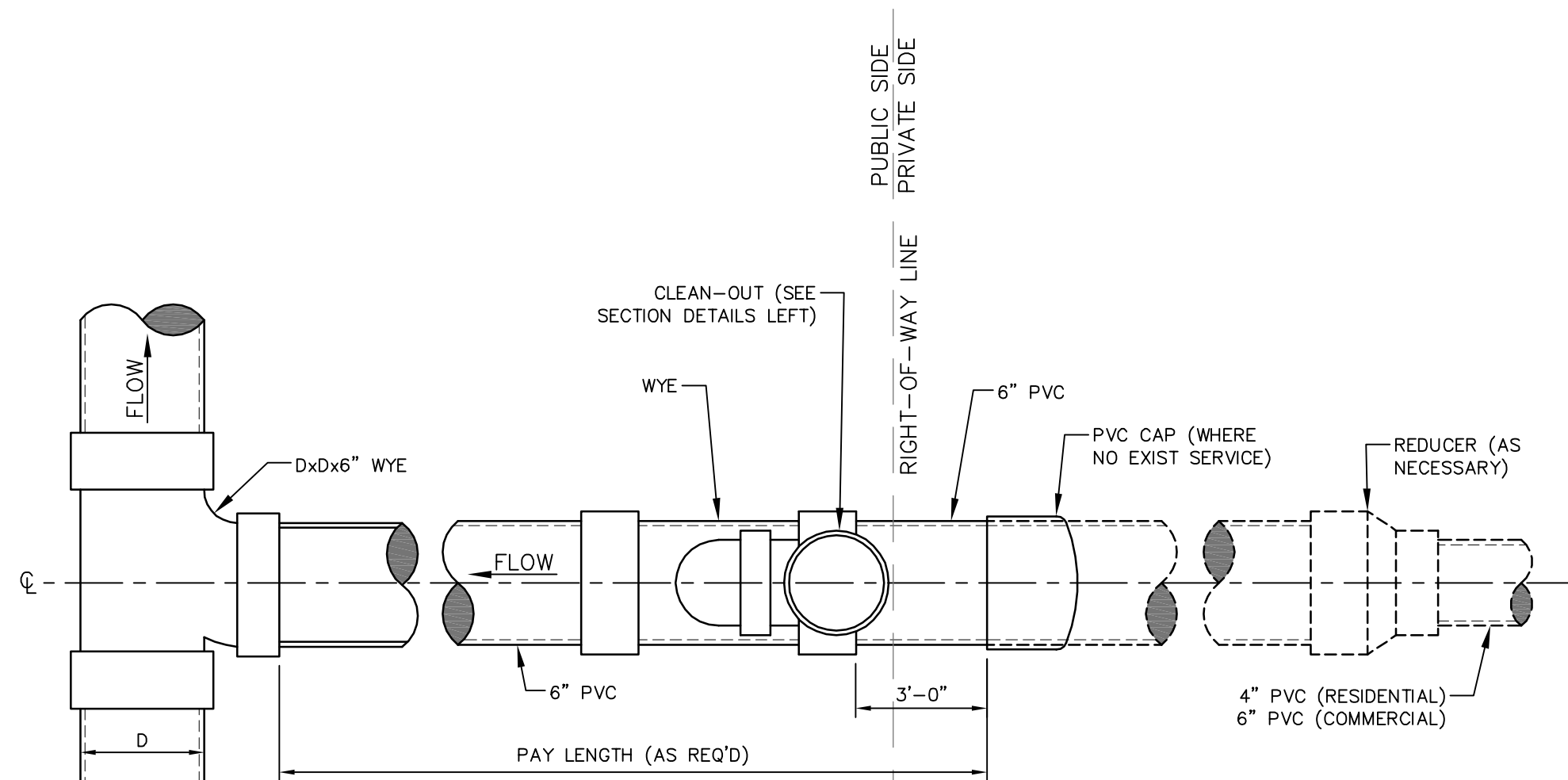
SANITARY SEWER CLEANOUT DETAIL - SECTION VIEW

FOR PAVED AREA



SANITARY SEWER CLEANOUT DETAIL - SECTION VIEW

FOR NON-PAVED AREA



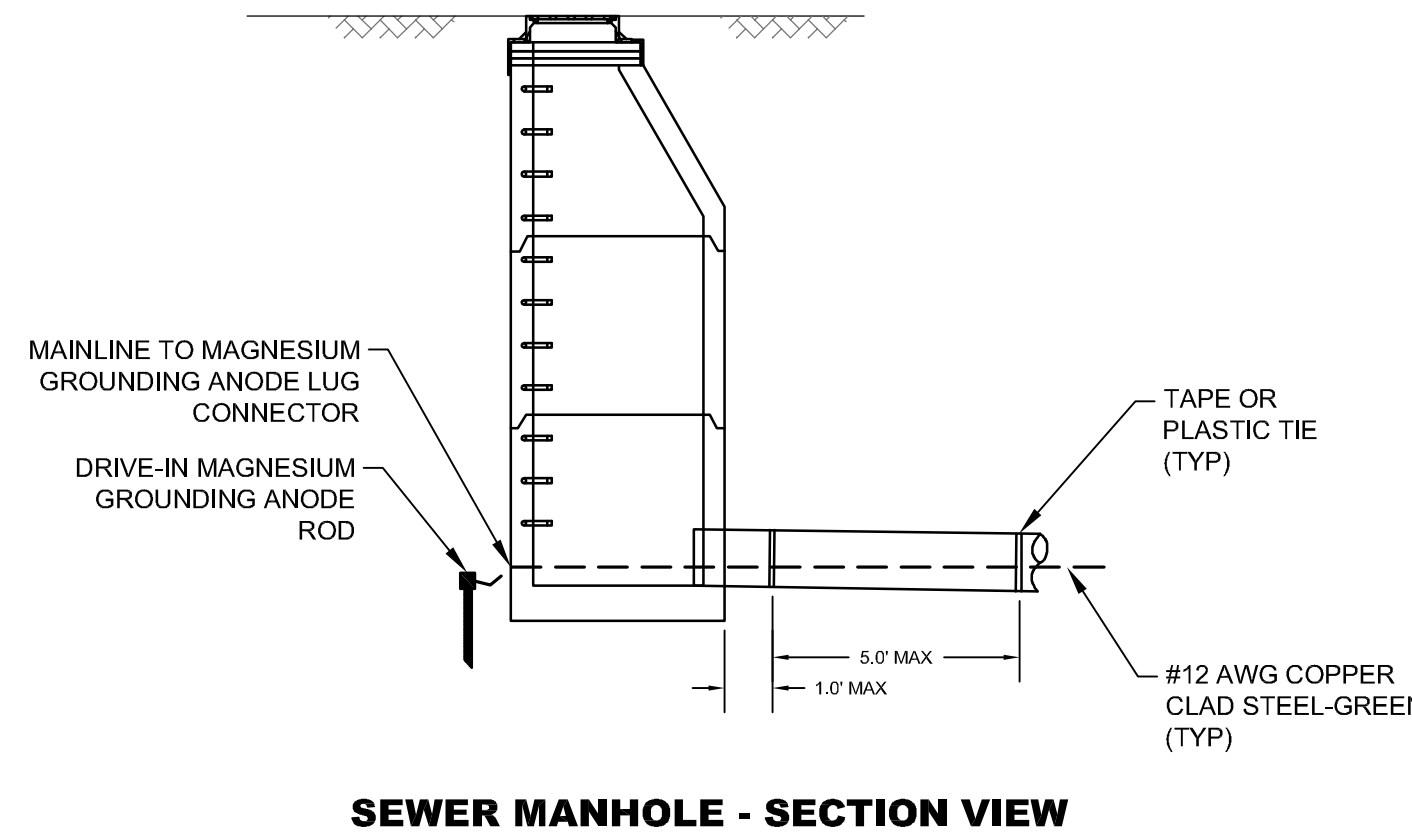
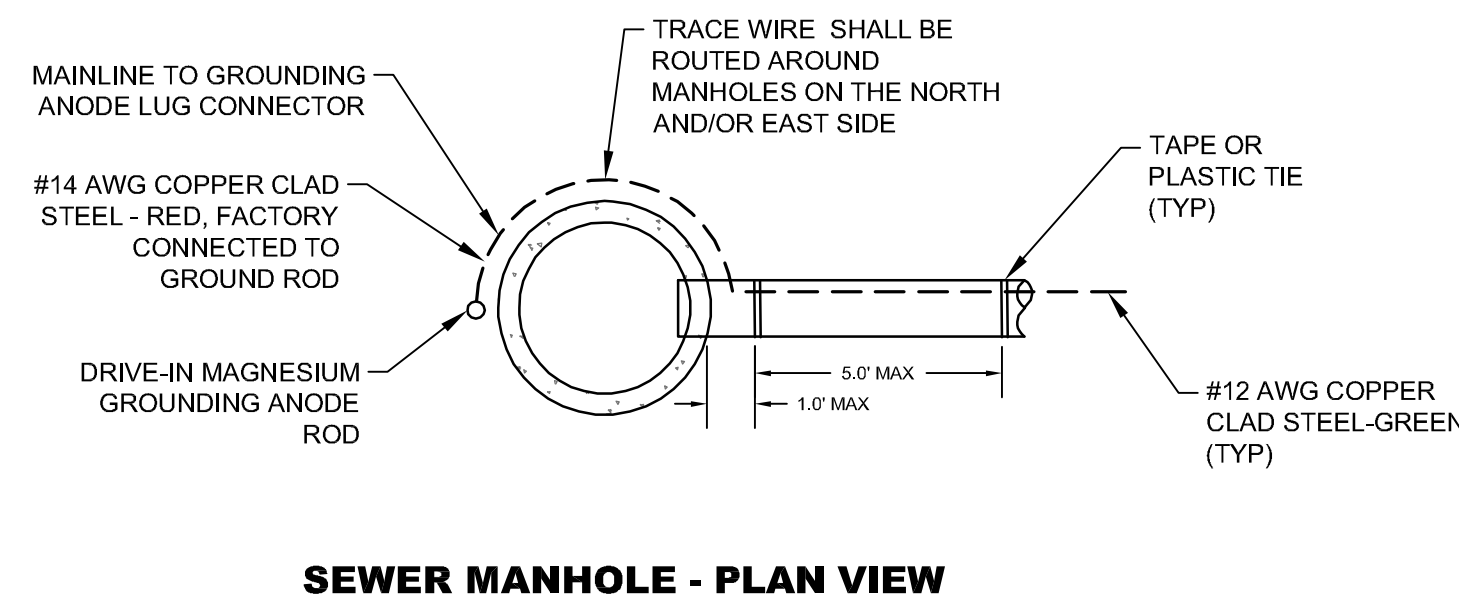
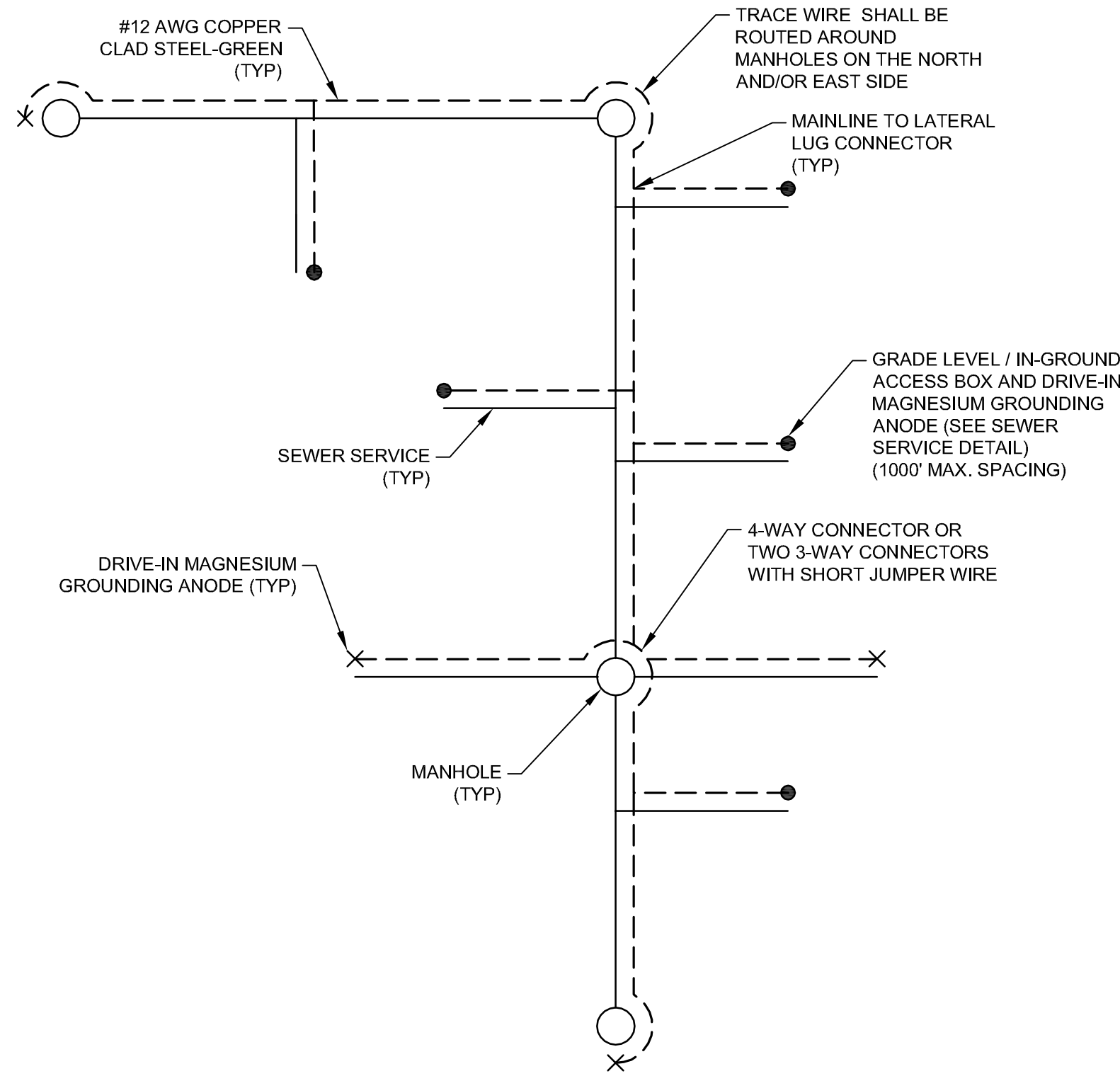
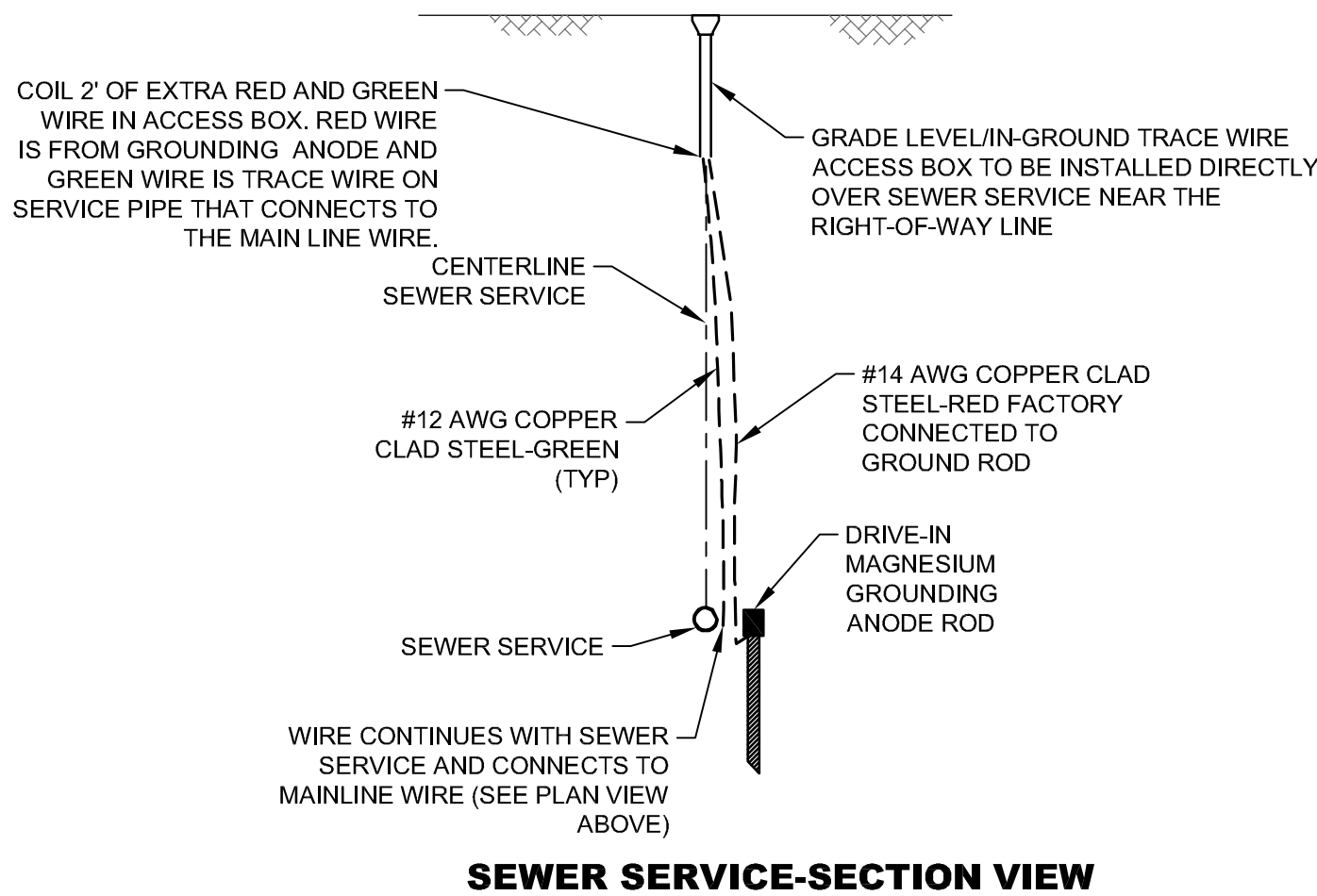
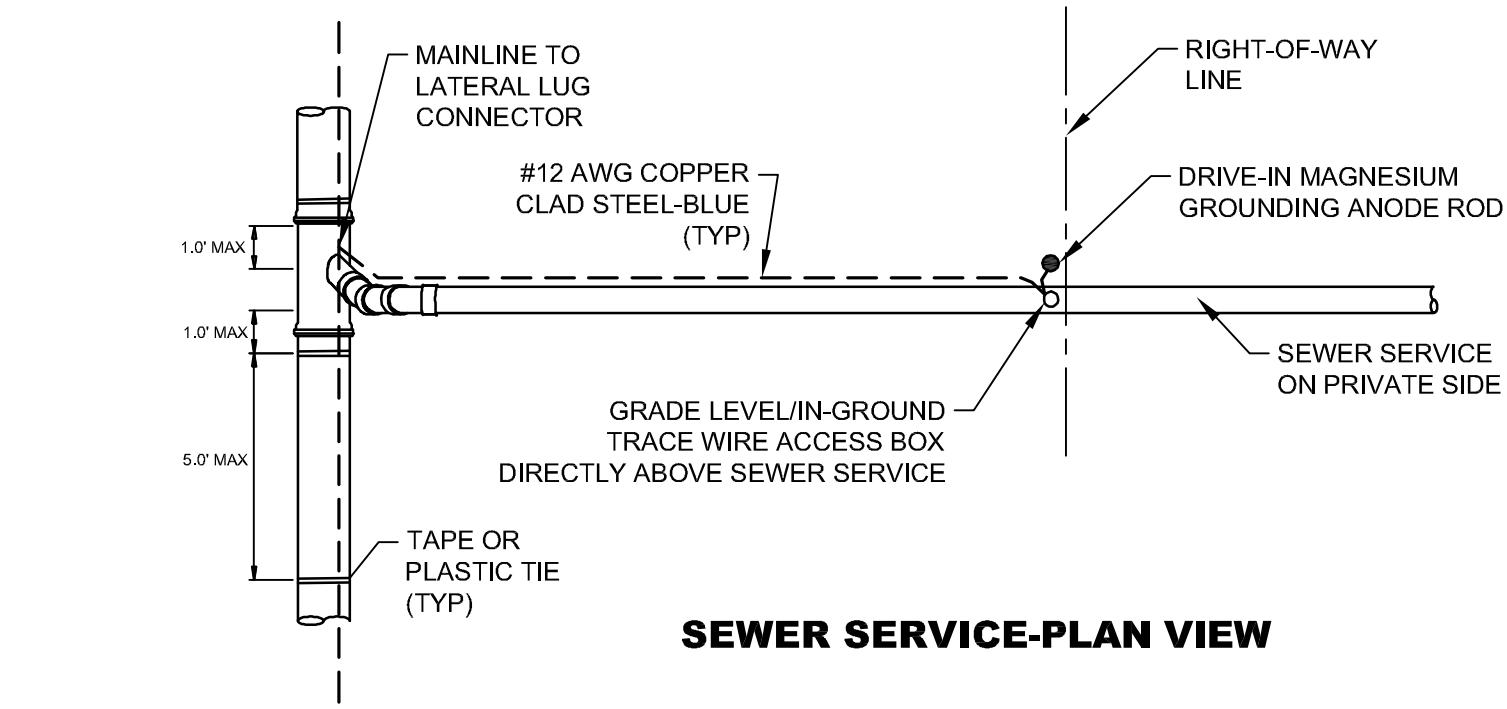
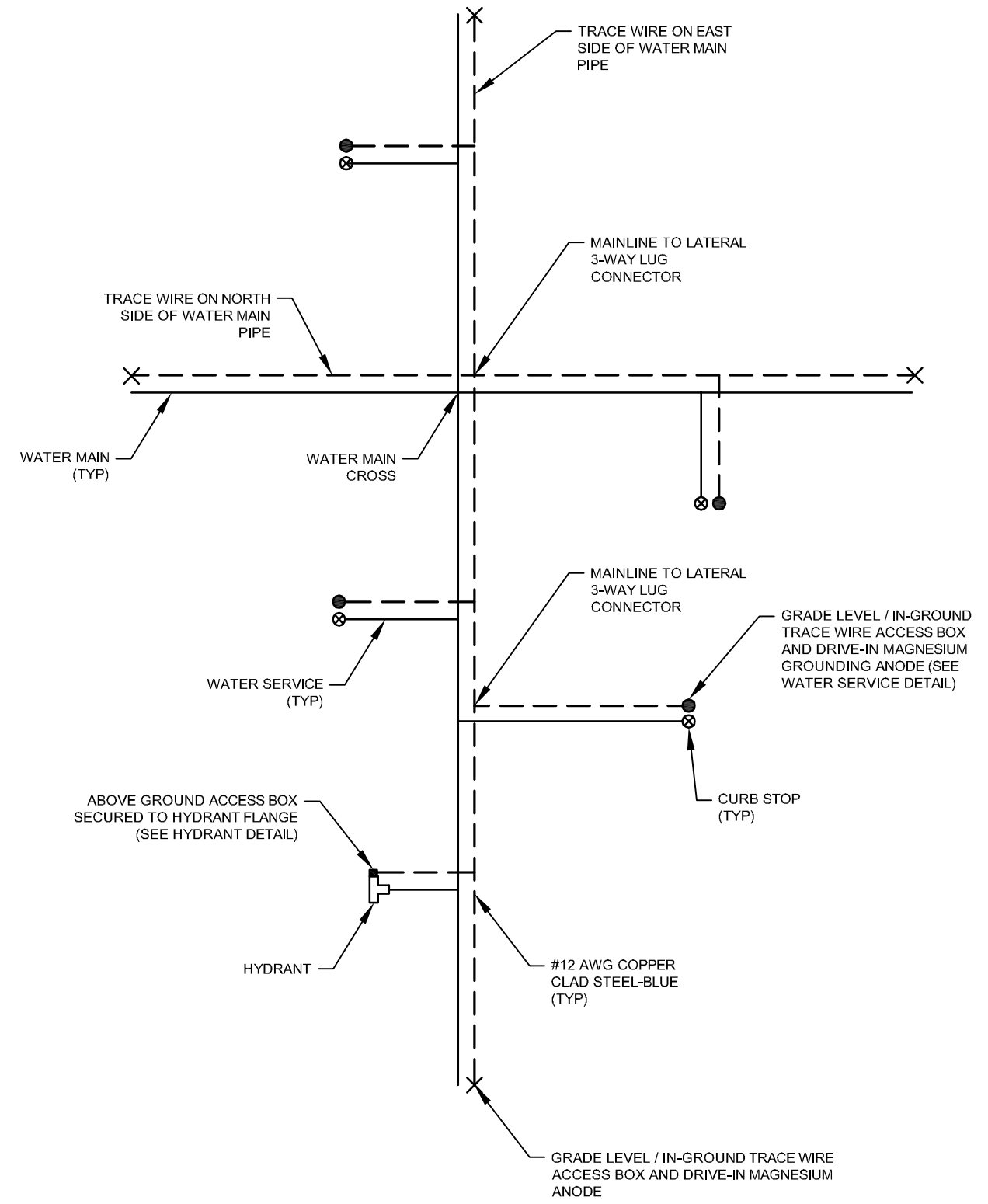
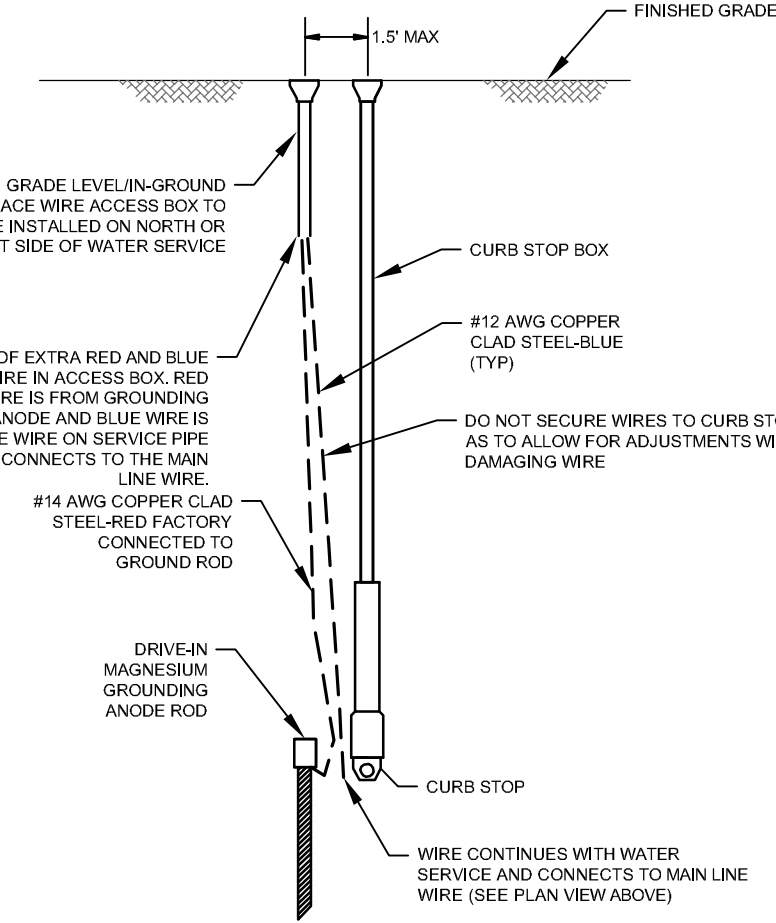
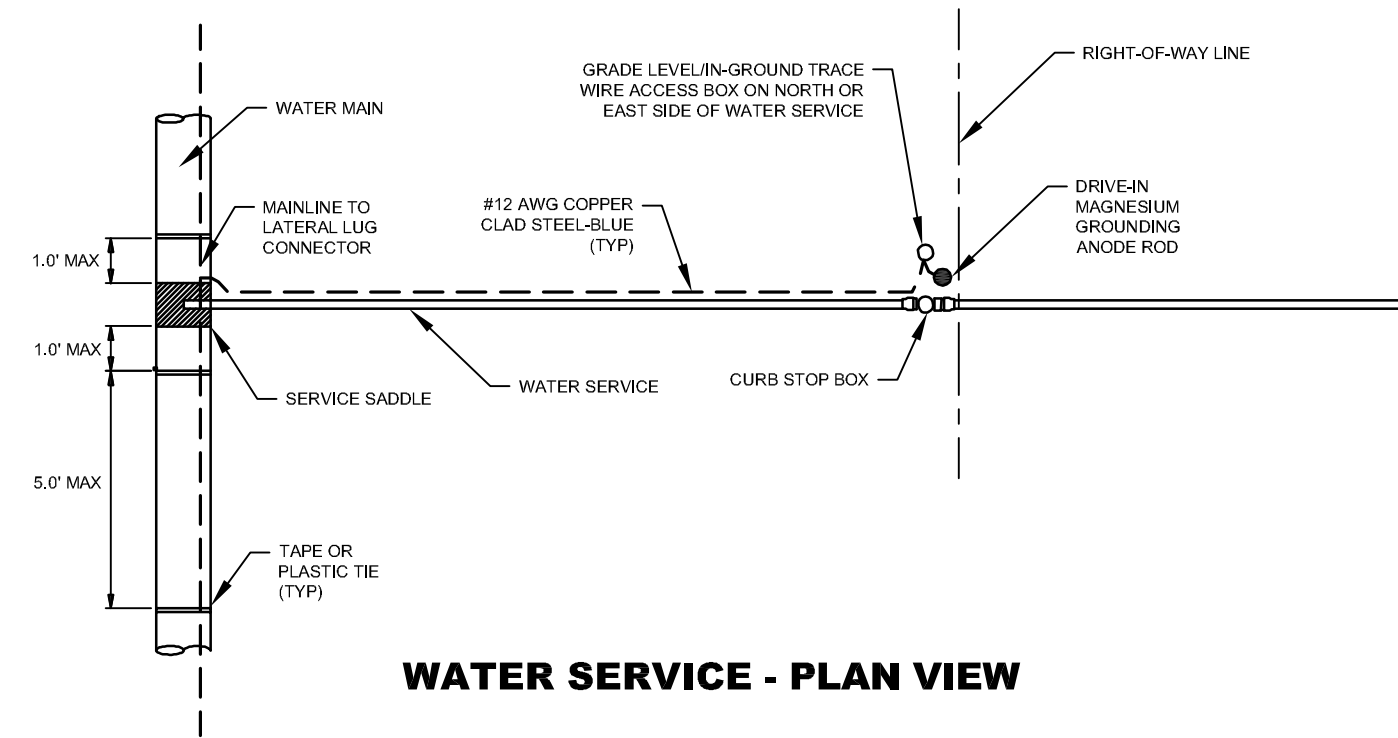
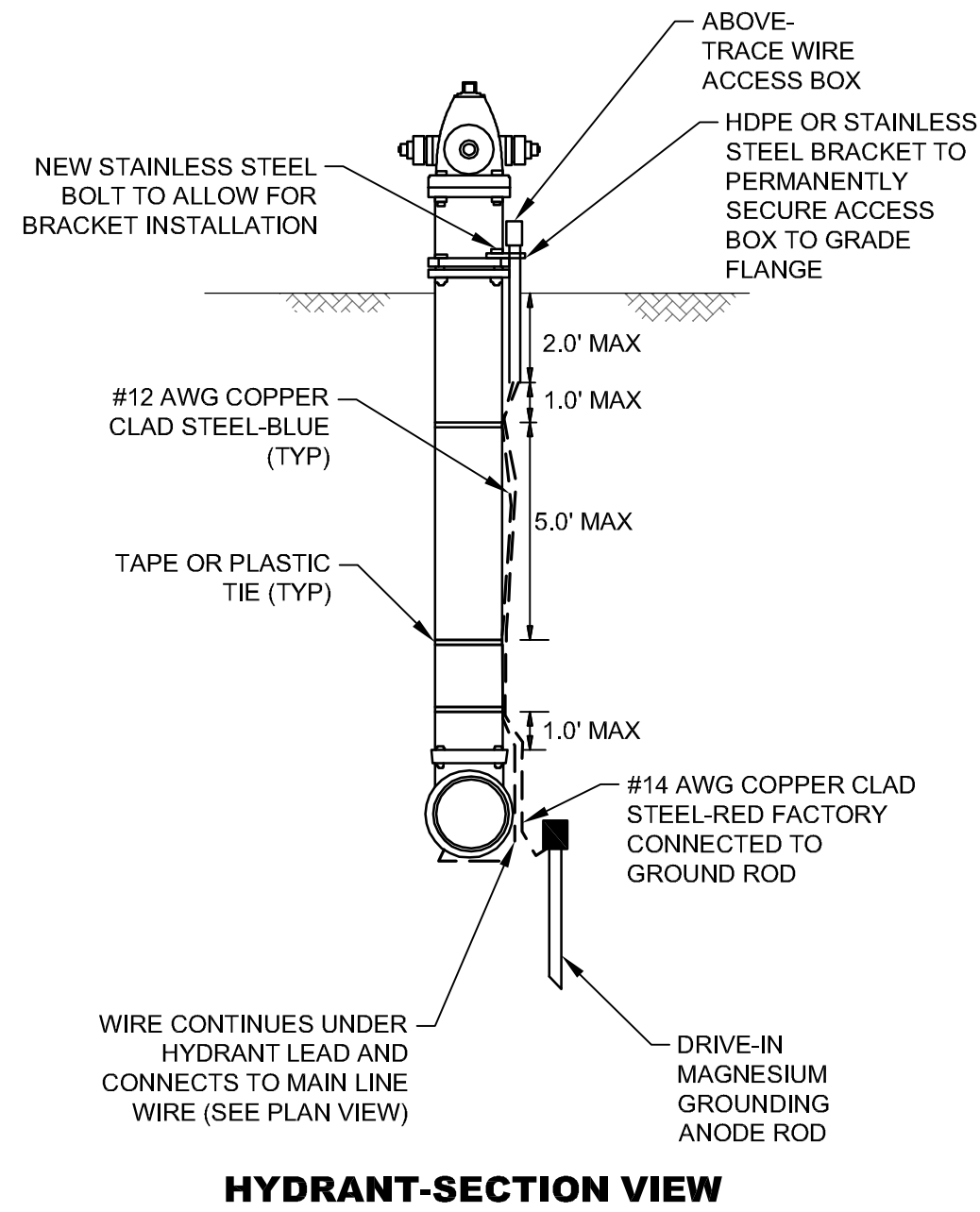
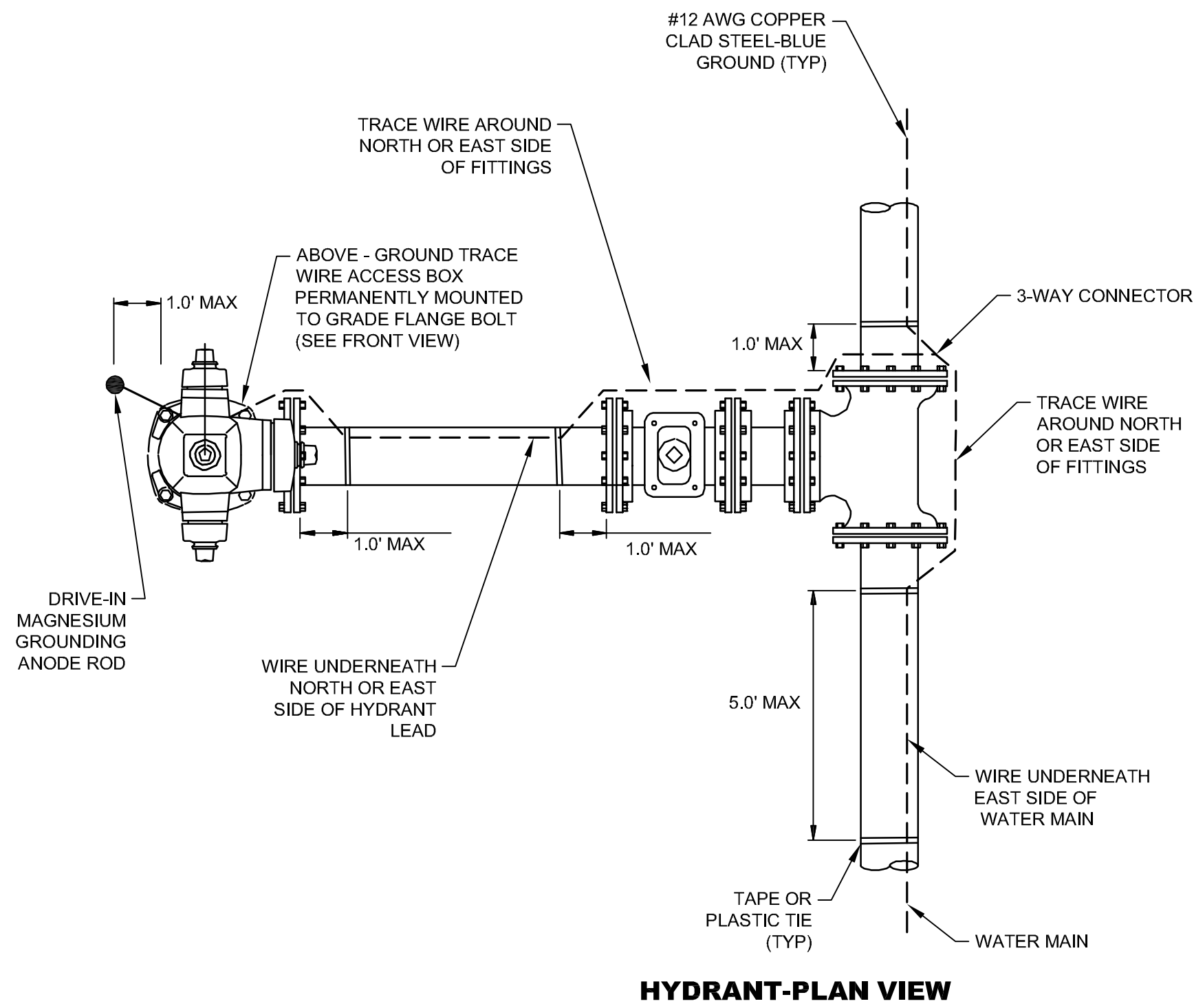
SERVICE CONNECTION - PLAN VIEW

CLEANOUT NOTE:

CLEANOUTS SHALL BE PLACED AT ALL BENDS IN SERVICE LINES OVER 22.5' AND ALL CHANGES IN GRADE. CLEANOUTS SHALL BE PLACED AT ROW LINES AS DETAILED.

NO.	DATE	DESCRIPTION	BY
SEWER INSTALLATION DETAILS			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
sdw Engineering Progress 301 Second Ave. Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by:	RES\BT	Checked by:	SEM
Date:	05-04-2018	Working No.:	SSD2
Drawing No.:	11258	Sheet No.:	16

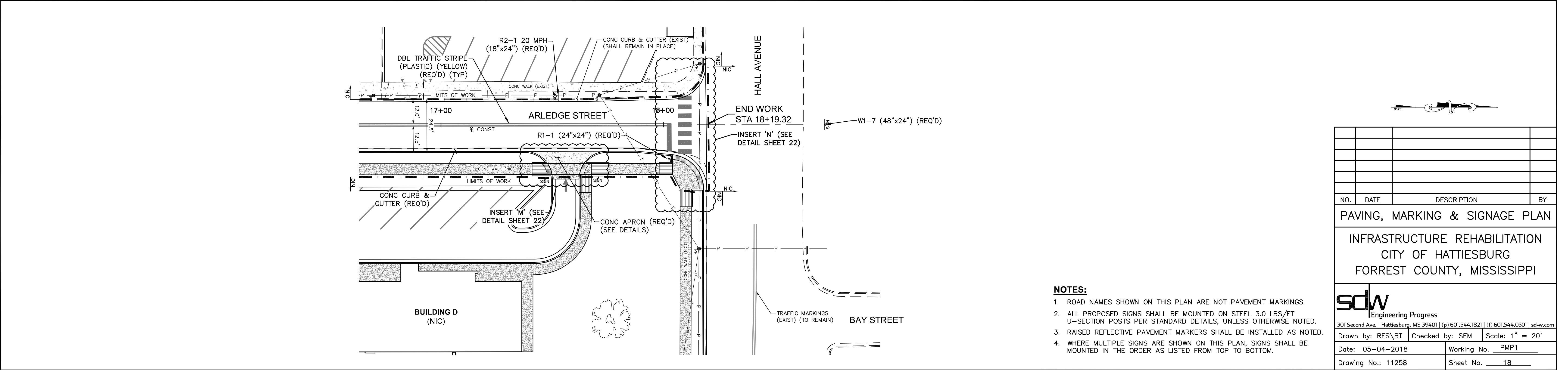
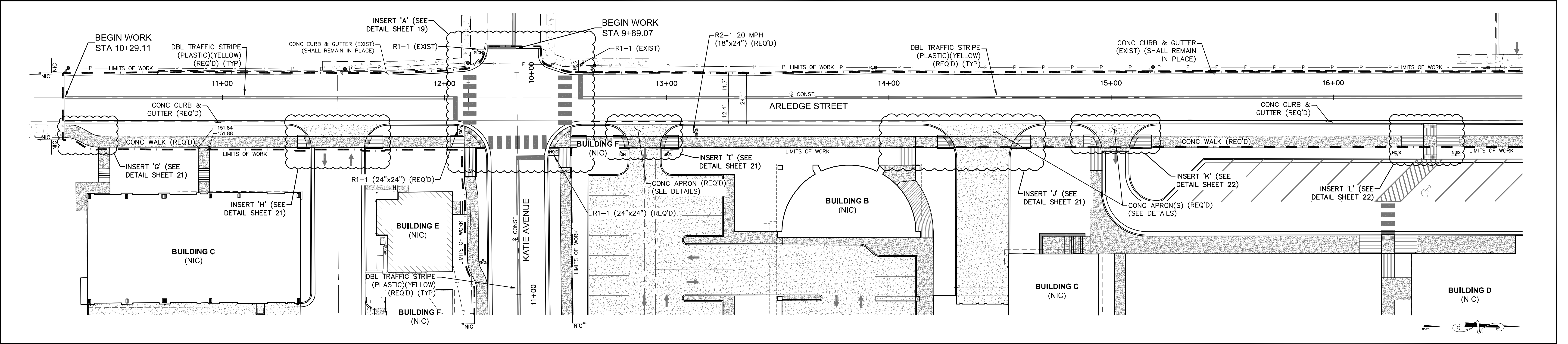
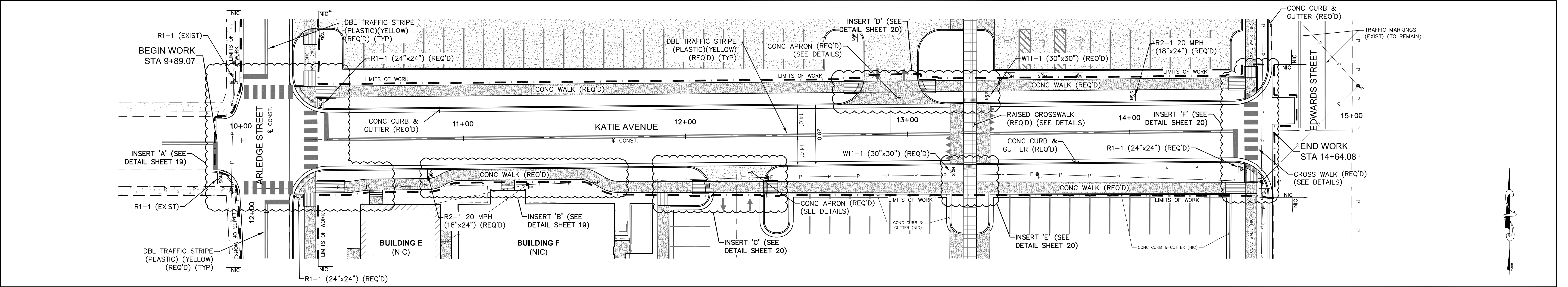
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NOTE:
WIRE SHOWN AWAY FROM PIPE FOR CLARITY. WIRE SHALL BE INSTALLED ON THE BOTTOM SIDE OF THE PIPE BELOW THE SPRING LINE. THE WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 5' INTERVALS.

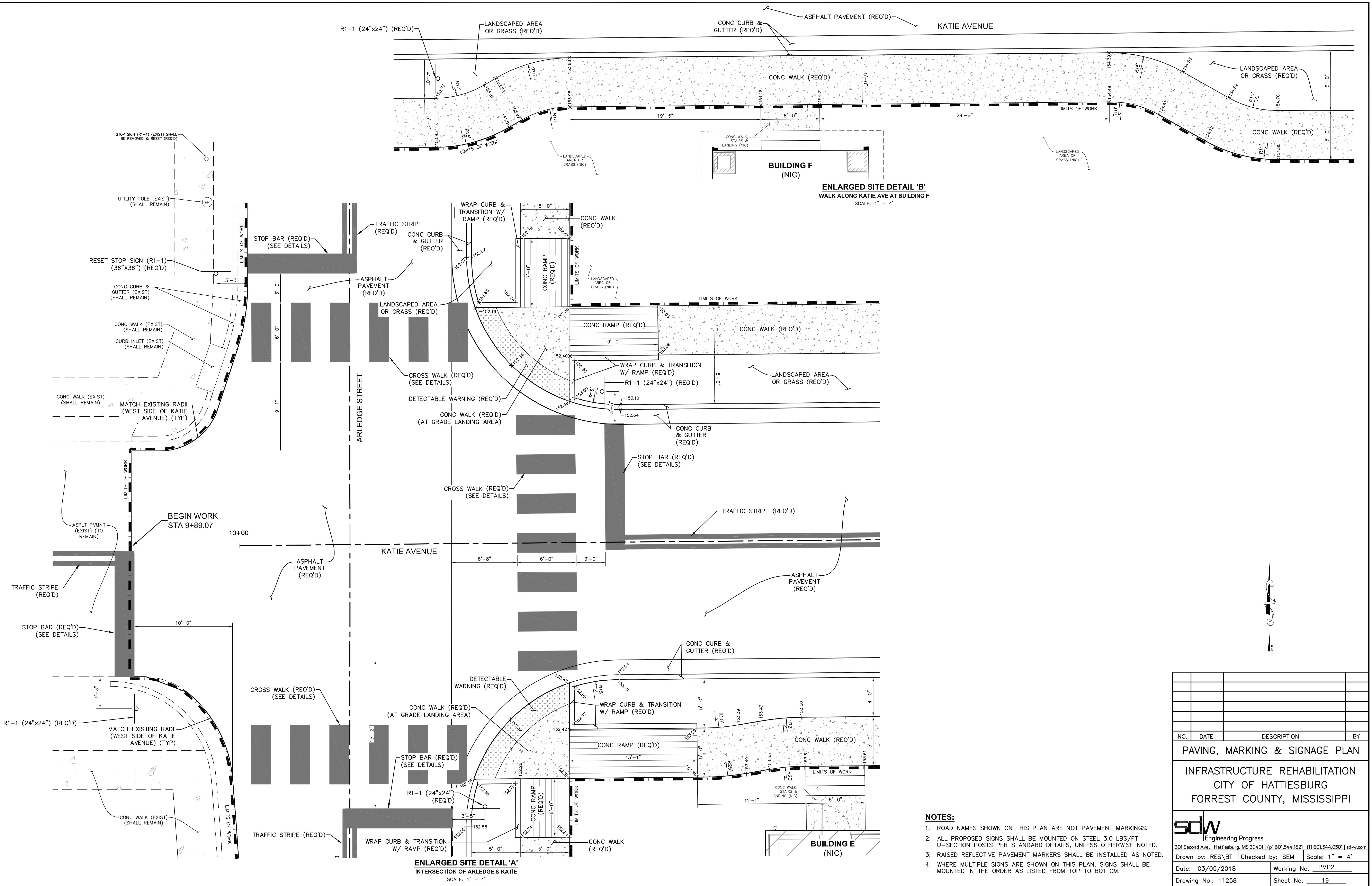
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TRACER WIRE DETAILS			
INFRASTRUCTURE REHABILITATION			
CITY OF HATTIESBURG			
FORREST COUNTY, MISSISSIPPI			
 Engineering Progress			
301 Second Ave. Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by: SLS		Checked by: SEM	Scale: NONE
Date: 05-04-2018		Working No. TWD1	
Drawing No.: 11258		Sheet No. 17	

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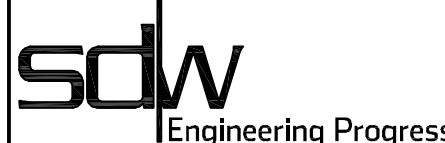


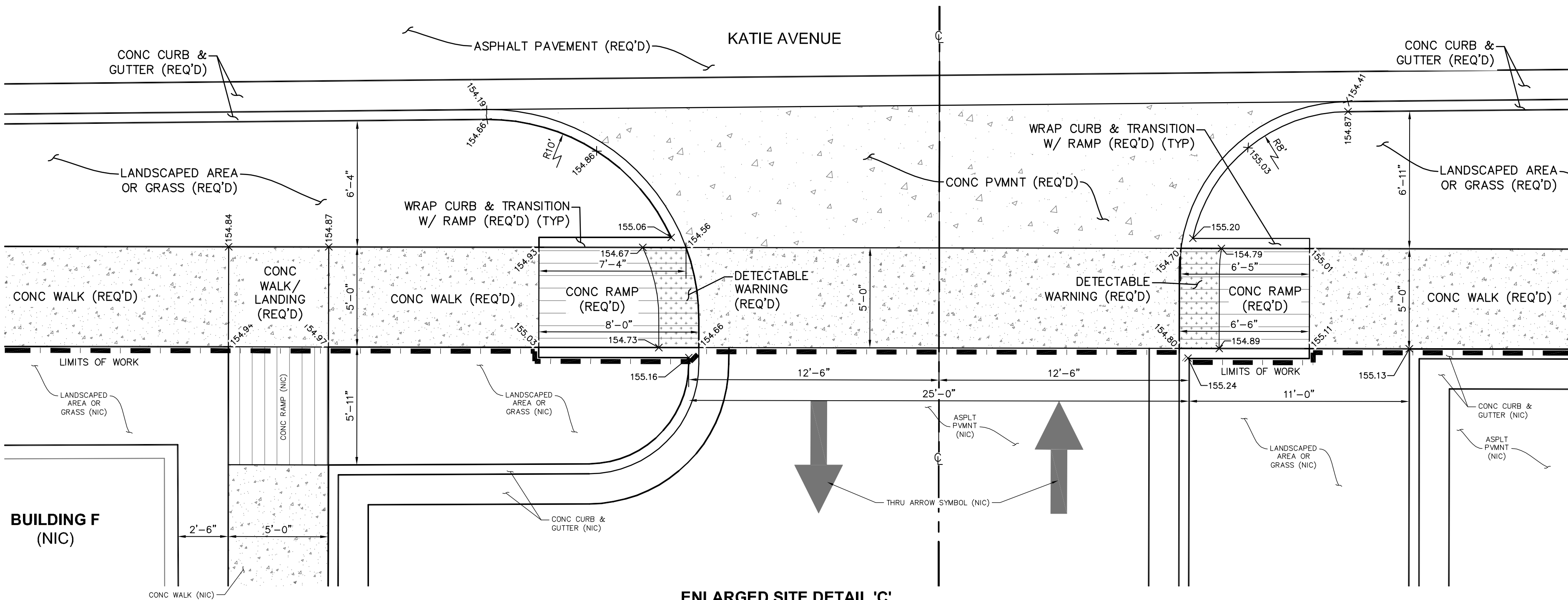
NO.	DATE	DESCRIPTION	BY
PAVING, MARKING & SIGNAGE PLAN			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
301 Second Ave., Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sdw.com			
Drawn by: RES\BT	Checked by: SEM	Scale: 1" = 20'	
Date: 05-04-2018	Working No. PMP1		
Drawing No.: 11258	Sheet No. 18		

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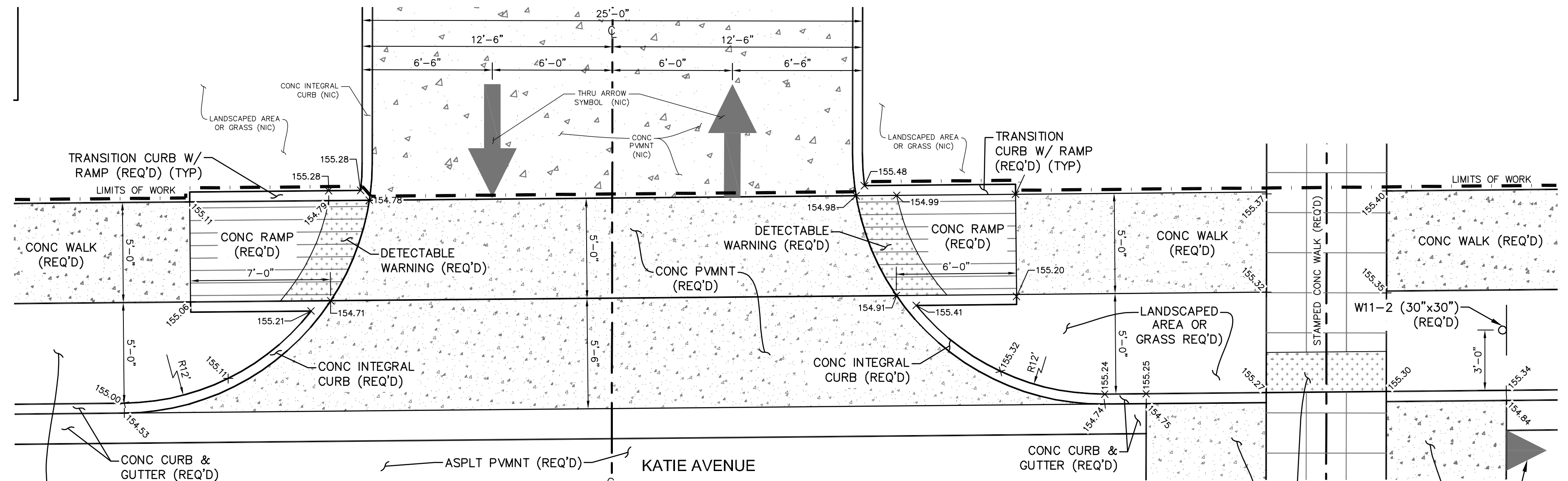


- NOTES:**
1. ROAD NAMES SHOWN ON THIS PLAN ARE NOT PAVEMENT MARKINGS.
 2. ALL PROPOSED SIGNS SHALL BE MOUNTED ON STEEL 3.0 LBS/FT U-SECTION POSTS PER STANDARD DETAILS, UNLESS OTHERWISE NOTED.
 3. RAISED REFLECTIVE PAVEMENT MARKERS SHALL BE INSTALLED AS NOTED.
 4. WHERE MULTIPLE SIGNS ARE SHOWN ON THIS PLAN, SIGNS SHALL BE MOUNTED IN THE ORDER AS LISTED FROM TOP TO BOTTOM.

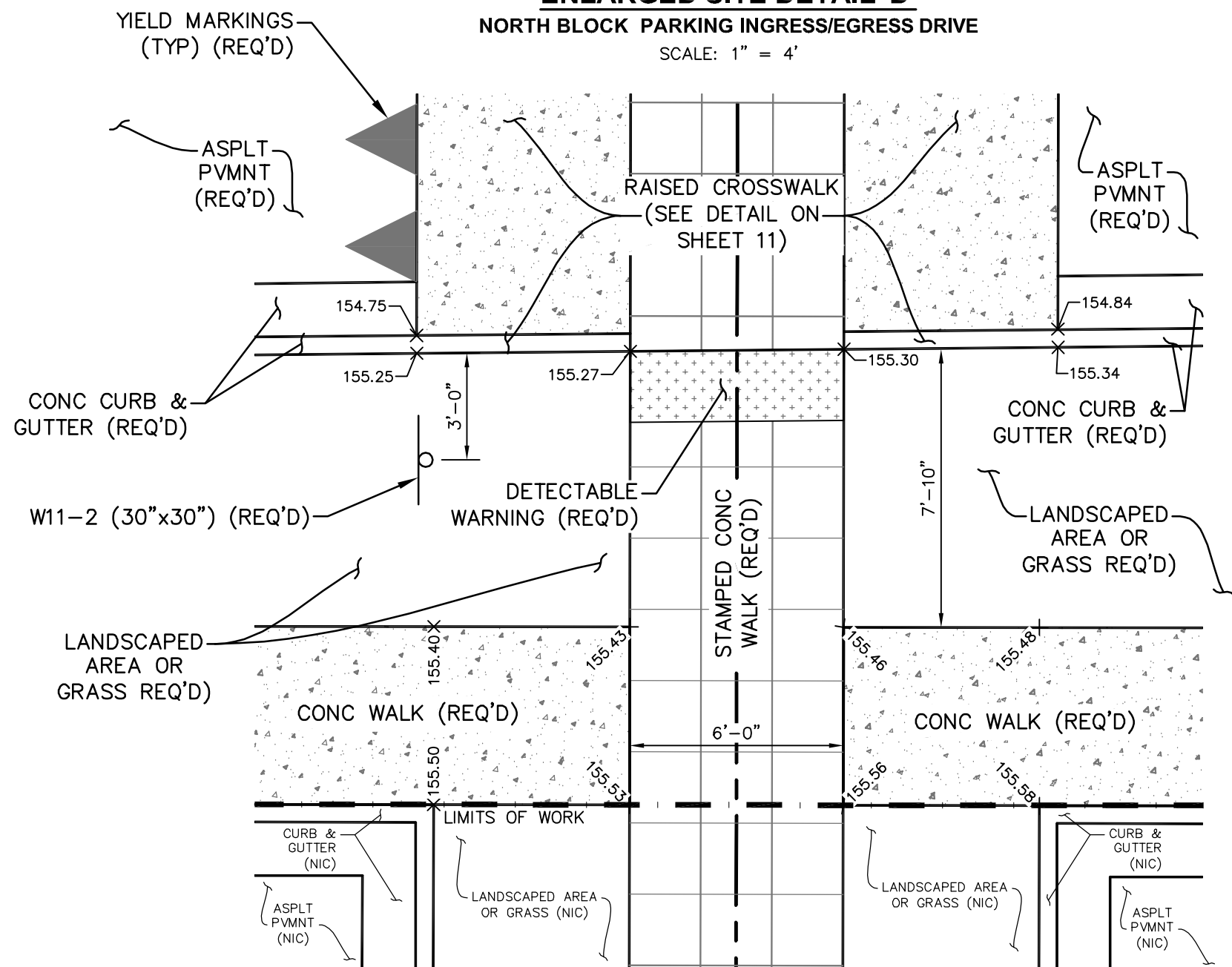
NO.	DATE	DESCRIPTION	BY
PAVING, MARKING & SIGNAGE PLAN			
INFRASTRUCTURE REHABILITATION			
CITY OF HATTIESBURG			
FORREST COUNTY, MISSISSIPPI			
			
301 Second Ave, Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by: RES\BT		Checked by: SEM	Scale: 1" = 4'
Date: 03/05/2018		Working No. <u>PMP2</u>	
Drawing No.: 11258		Sheet No. <u>19</u>	



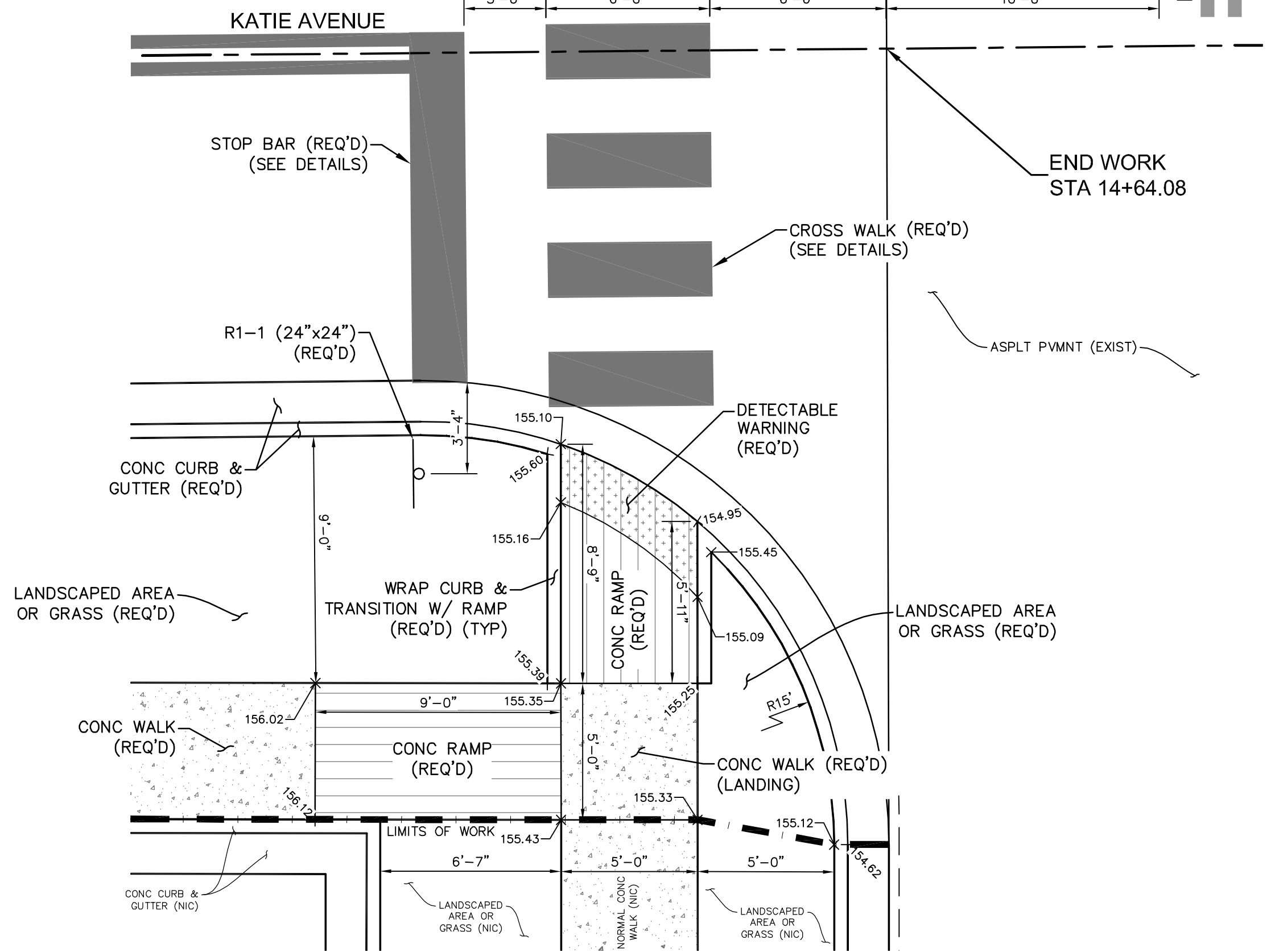
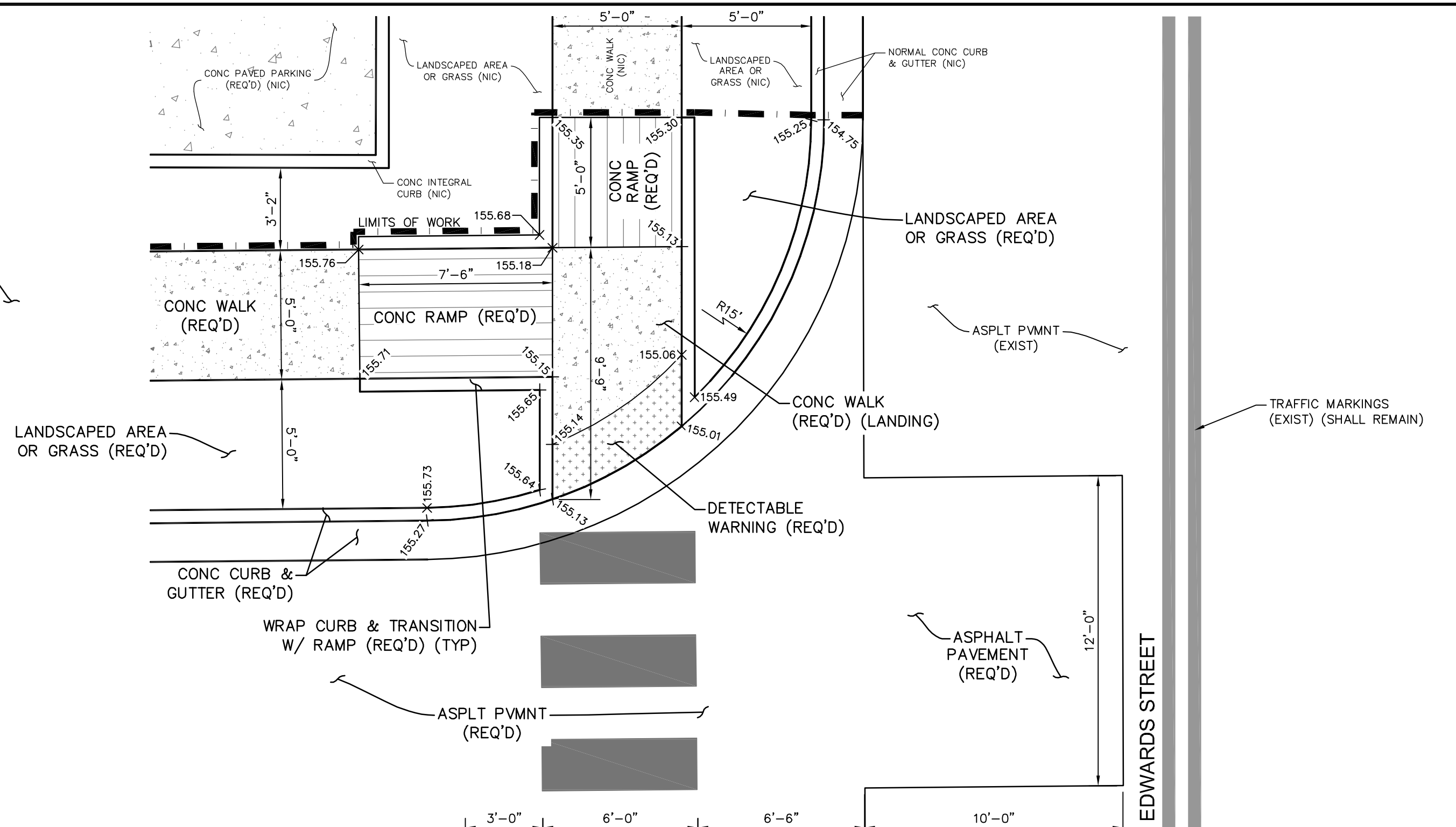
ENLARGED SITE DETAIL 'C'
PUBLIC PARKING ACCESS DRIVE (NORTH ENTRANCE)
SCALE: 1" = 4'



ENLARGED SITE DETAIL 'D'
NORTH BLOCK PARKING INGRESS/EGRESS DRIVE
SCALE: 1" = 4'



ENLARGED SITE DETAIL 'E'
SOUTHSIDE OF KATIE AVENUE RAISED CROSSWALK / AT-GRADE SOUTH PARKING WALK
SCALE: 1" = 4'



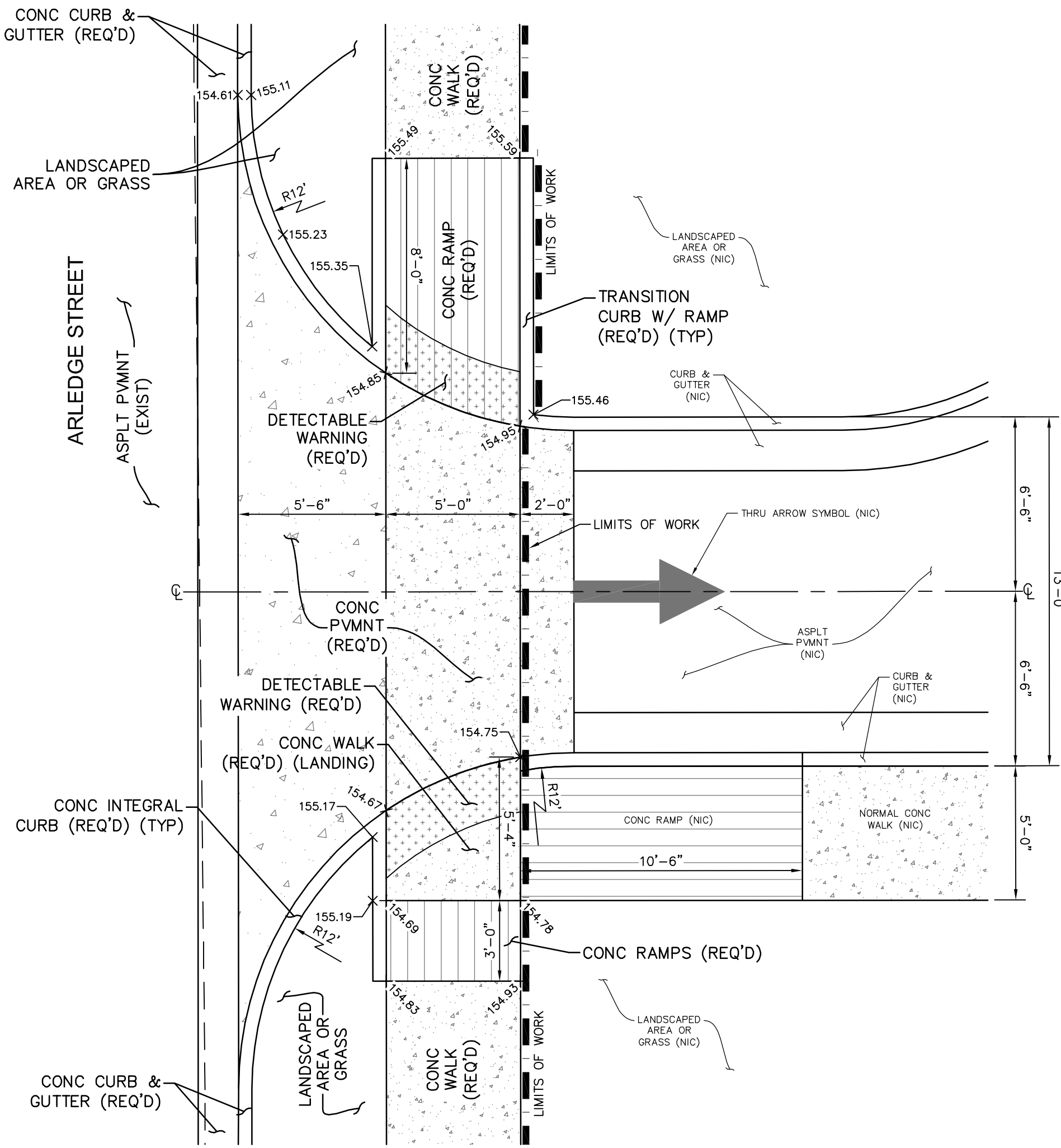
ENLARGED SITE DETAIL 'F'
CURB RAMPS @ THE INTERSECTION OF KATIE & EDWARDS
SCALE: 1" = 4'

NOTES:

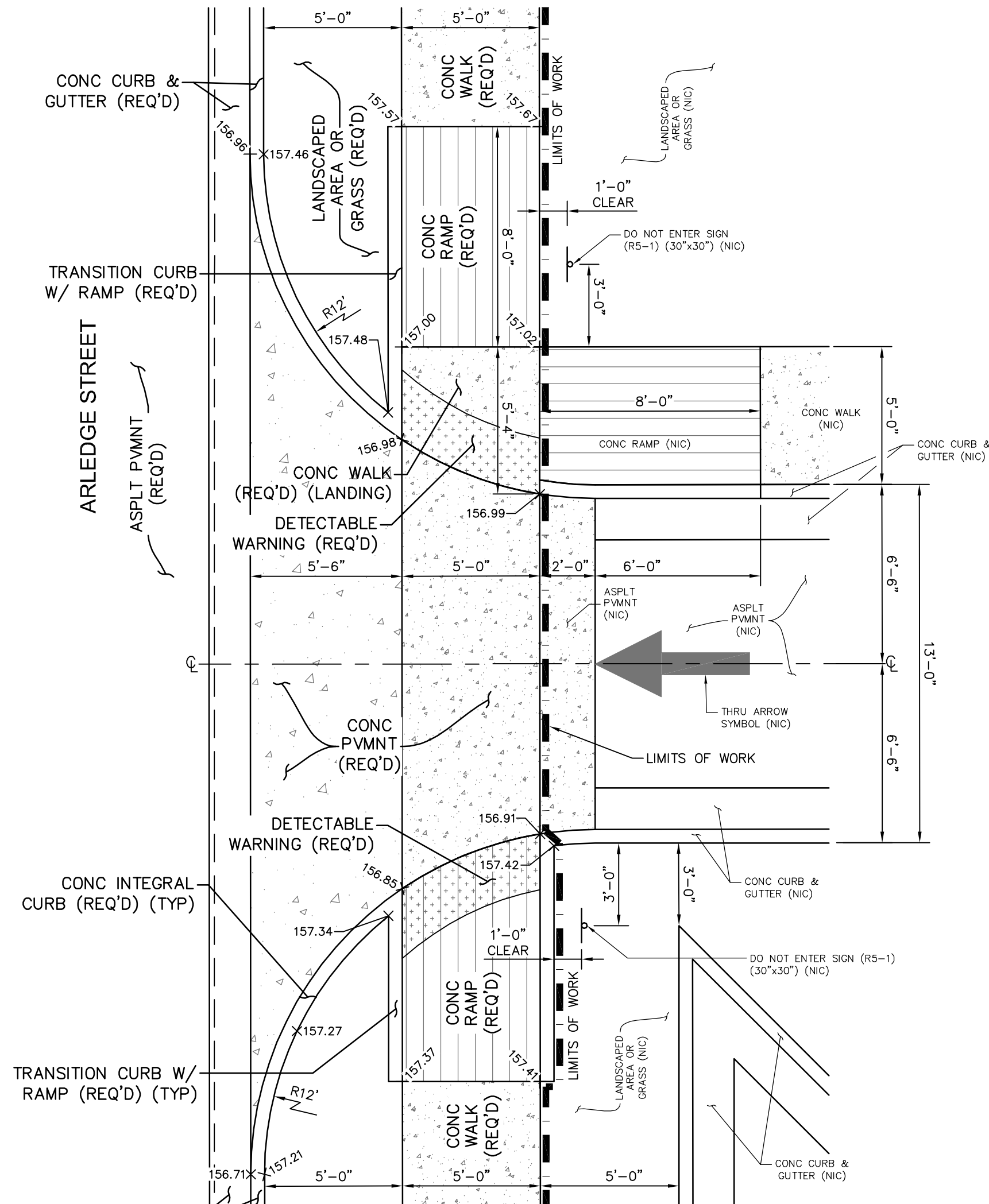
1. ROAD NAMES SHOWN ON THIS PLAN ARE NOT PAVEMENT MARKINGS.
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PAVING, MARKING & SIGNAGE PLAN			
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Date: 05-04-2018	Working No. PMP3		
Drawing No.: 11258	Sheet No. 20		

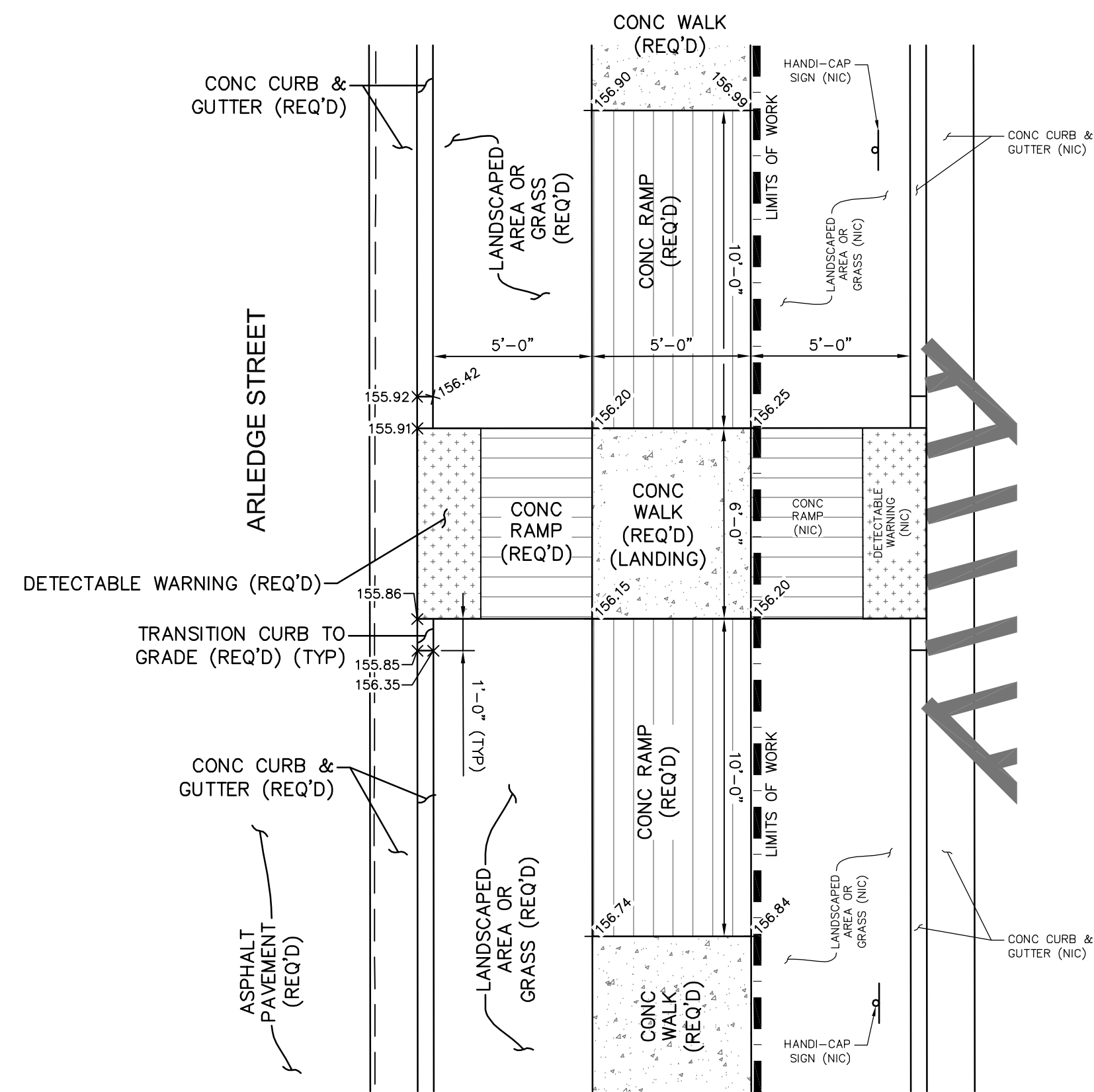
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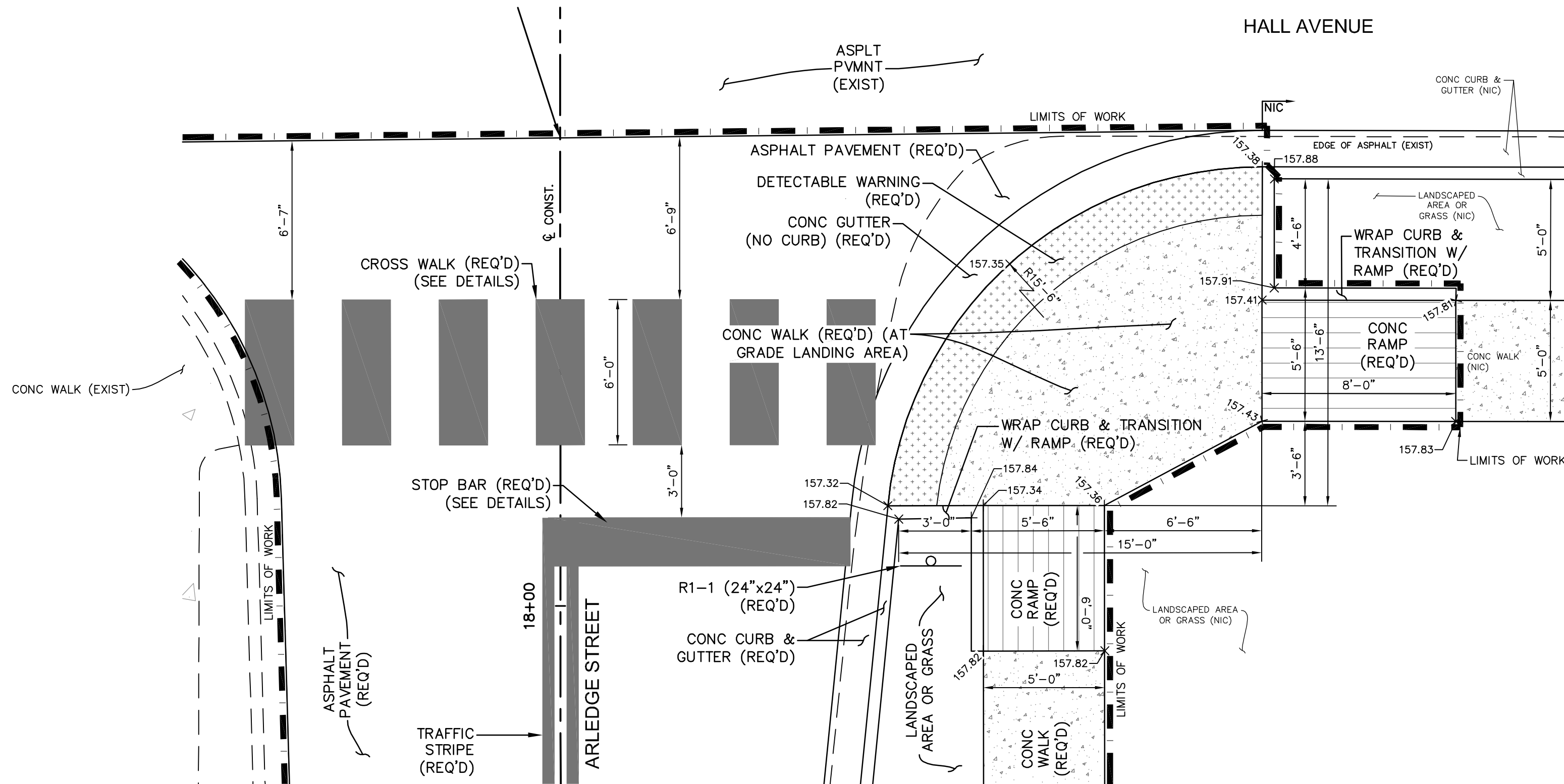
ENLARGED SITE DETAIL 'K'
CONCRETE DRIVEWAY & CURB RAMPS AT BUILDING D INGRESS
SCALE: 1" = 4'



ENLARGED SITE DETAIL 'M'
CONCRETE DRIVEWAY & CURB RAMPS AT BUILDING D EGRESS
SCALE: 1" = 4'



ENLARGED SITE DETAIL 'L'
AT GRADE WALK BETWEEN BUILDING 'D' PARKING & ARLEDGE
SCALE: 1" = 4'



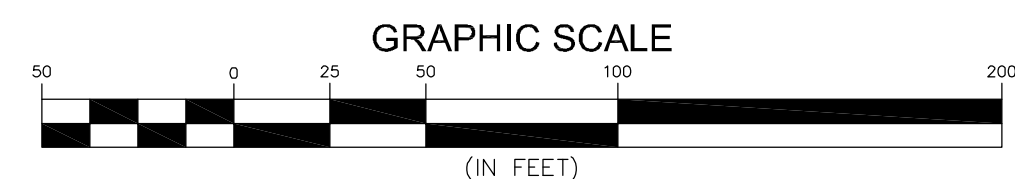
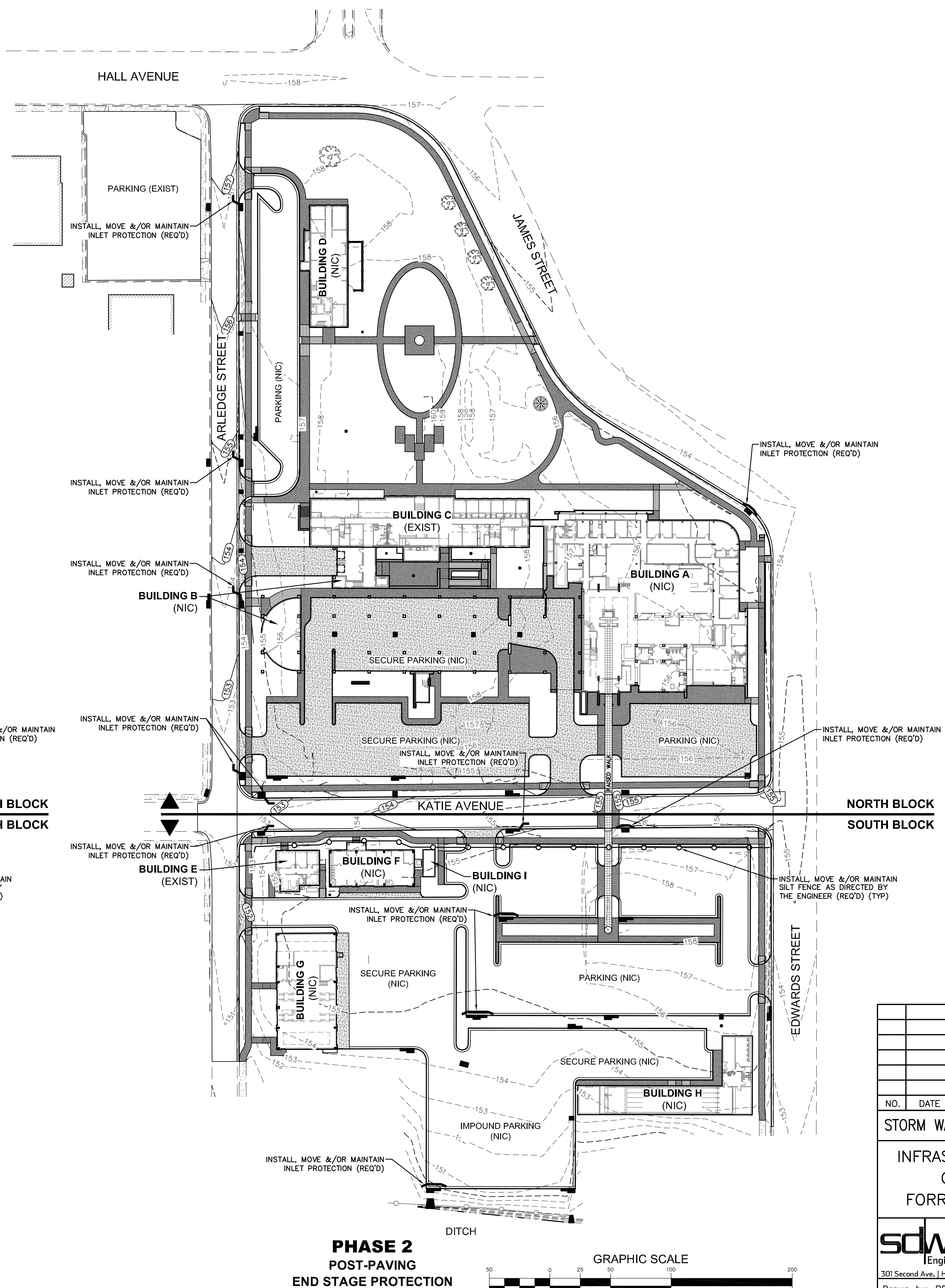
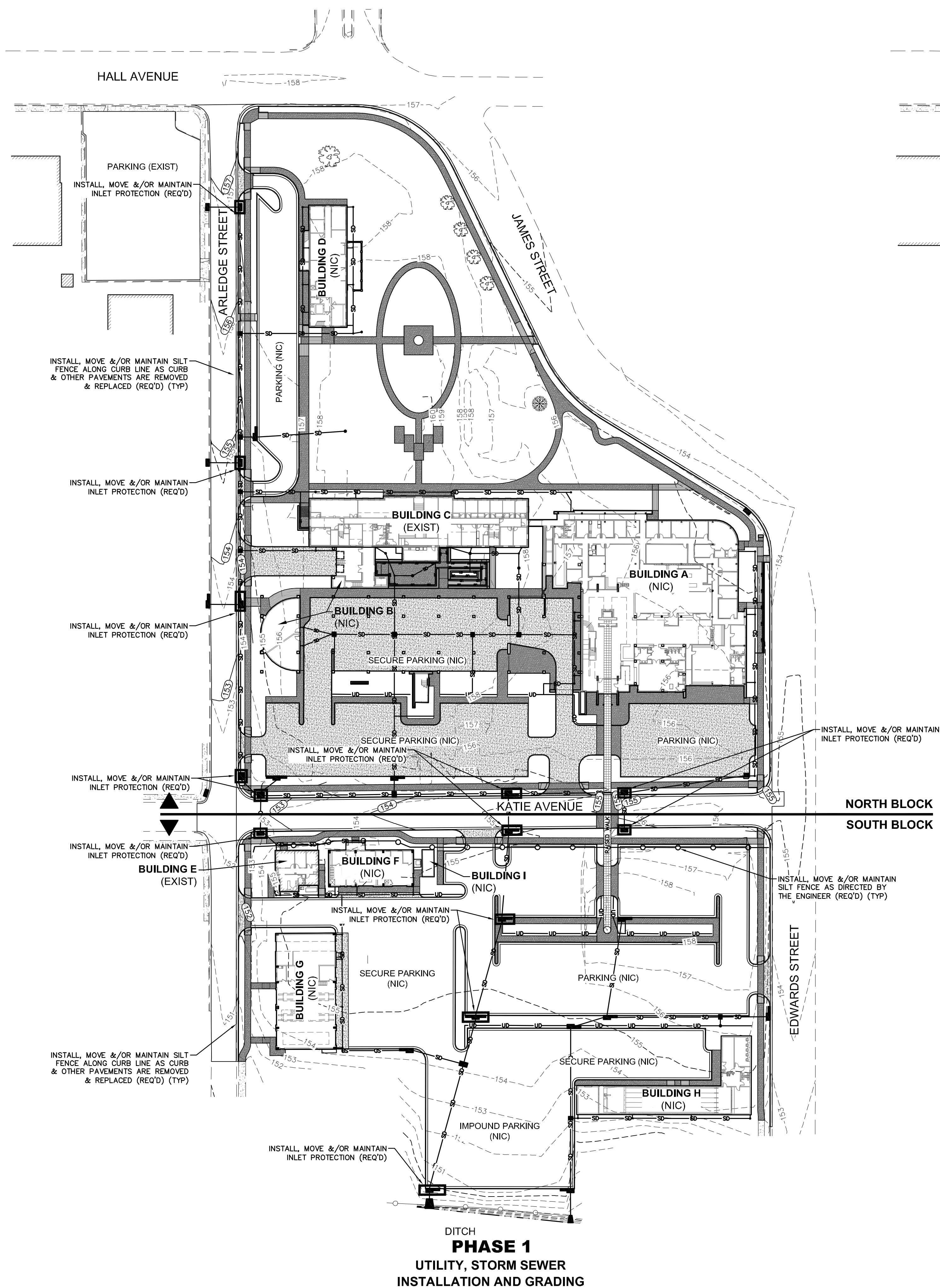
ENLARGED SITE DETAIL 'N'
INTERSECTION OF ARLEDGE & HALL
SCALE: 1" = 4'

NOTES:

1. ROAD NAMES SHOWN ON THIS PLAN ARE NOT PAVEMENT MARKINGS.
2. ALL PROPOSED SIGNS SHALL BE MOUNTED ON STEEL 3.0 LBS/FT U-SECTION POSTS PER STANDARD DETAILS, UNLESS OTHERWISE NOTED.
3. RAISED REFLECTIVE PAVEMENT MARKERS SHALL BE INSTALLED AS NOTED.
4. WHERE MULTIPLE SIGNS ARE SHOWN ON THIS PLAN, SIGNS SHALL BE MOUNTED IN THE ORDER AS LISTED FROM TOP TO BOTTOM.

NO.	DATE	DESCRIPTION	BY
PAVING, MARKING & SIGNAGE PLAN			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
 Engineering Progress			
301 Second Ave., Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by:	RES\BT	Checked by:	SEM
Date:	05-04-2018	Working No.	PMP5
Drawing No.:	11258	Sheet No.	22

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NO.	DATE	DESCRIPTION	BY
STORM WATER POLLUTION PREVENTION PLAN			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
sdw Engineering Progress 301 Second Ave., Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by:	RES\BT	Checked by:	SEM
Date:	05-04-2018	Working No.:	ECP1
Drawing No.:	11258	Sheet No.:	23

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VEGETATION SCHEDULE						
EROSION CONTROL ITEMS		SEASONAL APPLICATIONS - DATES & RATES				REQUIREMENTS
		SPRING & SUMMER		FALL & WINTER		
	ITEMS	RATES	DATES	RATES	DATES	
	TOPSOIL FOR SLOPE TREATMENT (LVM)	4" THICK	MARCH 1 TO SEPTEMBER 1	4" THICK	SEPTEMBER 1 TO MARCH 1	TOPSOIL REQUIRED ON SLOPES DETERMINED BY THE ENGINEER DURING CONSTRUCTION
	STANDARD GROUND PREPARATION	PER SQ. FT.	MARCH 1 TO SEPTEMBER 1	PER SQ. FT.	SEPTEMBER 1 TO MARCH 1	GROUND PREPARATION REQUIRED ON AREAS TO RECEIVE SOLID SODDING OR SEEDING, AS APPLICABLE
	AGRICULTURAL LIMESTONE	3 TONS / ACRE	MARCH 1 TO SEPTEMBER 1	3 TONS / ACRE	SEPTEMBER 1 TO MARCH 1	LIMESTONE SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING
	COMBINATION FERTILIZER (13–13–13)	1000 LBS / ACRE	MARCH 1 TO SEPTEMBER 1	1000 LBS / ACRE	SEPTEMBER 1 TO MARCH 1	FERTILIZER SHALL BE MECHANICALLY SPREAD UNIFORMLY AND INCORPORATED INTO THE SOIL PRIOR TO PLANTING
	SUPER PHOSPHATE	0.5 TON / ACRE (EST)	MARCH 1 TO SEPTEMBER 1			SUPER PHOSPHATE (FOR BID ITEM PURPOSES)
	SEEDING (BERMUDA GRASS)	20 LBS / ACRE	MARCH 1 TO SEPTEMBER 1	20 LBS / ACRE	SEPTEMBER 1 TO MARCH 1	SEED REQUIRED ON DISTURBED AREAS. UNHULLED SEED MAY BE REQUIRED DURING THE DORMANT SEASON AS DIRECTED
	SEEDING (TALL FESCUE)			15 LBS / ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED IN DISTURBED AREAS
	SEEDING (CRIMSON CLOVER)			20 LBS / ACRE	AUGUST 15 TO MARCH 15	SEED REQUIRED ON DISTURBED AREA
	VEGETATIVE MATERIAL FOR MULCH	2 TONS / ACRE (EST)	MARCH 1 TO SEPTEMBER 1	2 TONS / ACRE (EST)	SEPTEMBER 1 TO MARCH 1	THE ENGINEER WILL DESIGNATE THE RATES OF APPLICABLE (SEE SUBSECTION 215–03.3)
	SOLID SODDING	PER SQ. YD.	MARCH 1 TO SEPTEMBER 1	PER SQ. YD.	SEPTEMBER 1 TO MARCH 1	SOLID SOD REQUIRED ON AREAS SPECIFIED IN THE CONTRACT OR BY THE ENGINEER
	WATERING	20 GAL / S.Y. (EST)	MARCH 1 TO SEPTEMBER 1	20 GAL. / S.Y. (EST)	SEPTEMBER 1 TO MARCH 1	TO BE USED AS DIRECTED IN THE PLANTING AND ESTABLISHING OF SOLID SOD
	INSECT PEST CONTROL	PER ACRE		PER ACRE		SEE SECTION 220
TEMPORARY EROSION CONTROL ITEMS						
	LIGHT GROUND PREPARATION	PER SQ. YD.		PER SQ. YD.		APPROXIMATELY HALF SQ.YD. STANDARD GROUND PREPARATION
	COMBINATION FERTILIZER (13–13–13)	0.25 TONS/ ACRE		0.25 TONS/ ACRE		QUANTITY BASED ON LIGHT GROUND PREPARATION
	SEEDING (BROWN TOP MILLET)	20 LBS / ACRE	APRIL 1 TO AUGUST 31			QUANTITY BASED ON LIGHT GROUND PREPARATION
	SEEDING (RYE GRASS)			25 LBS / ACRE	SEPTEMBER 1 TO MARCH 31	QUANTITY BASED ON LIGHT GROUND PREPARATION
	SEEDING (OATS)			90 LBS / ACRE	SEPTEMBER 1 TO DECEMBER 15	QUANTITY BASED ON LIGHT GROUND PREPARATION
	VEGETATIVE MATERIAL FOR MULCH	1 TON / ACRE (EST)		1 TON / ACRE (EST)		QUANTITY BASED ON LIGHT GROUND PREPARATION

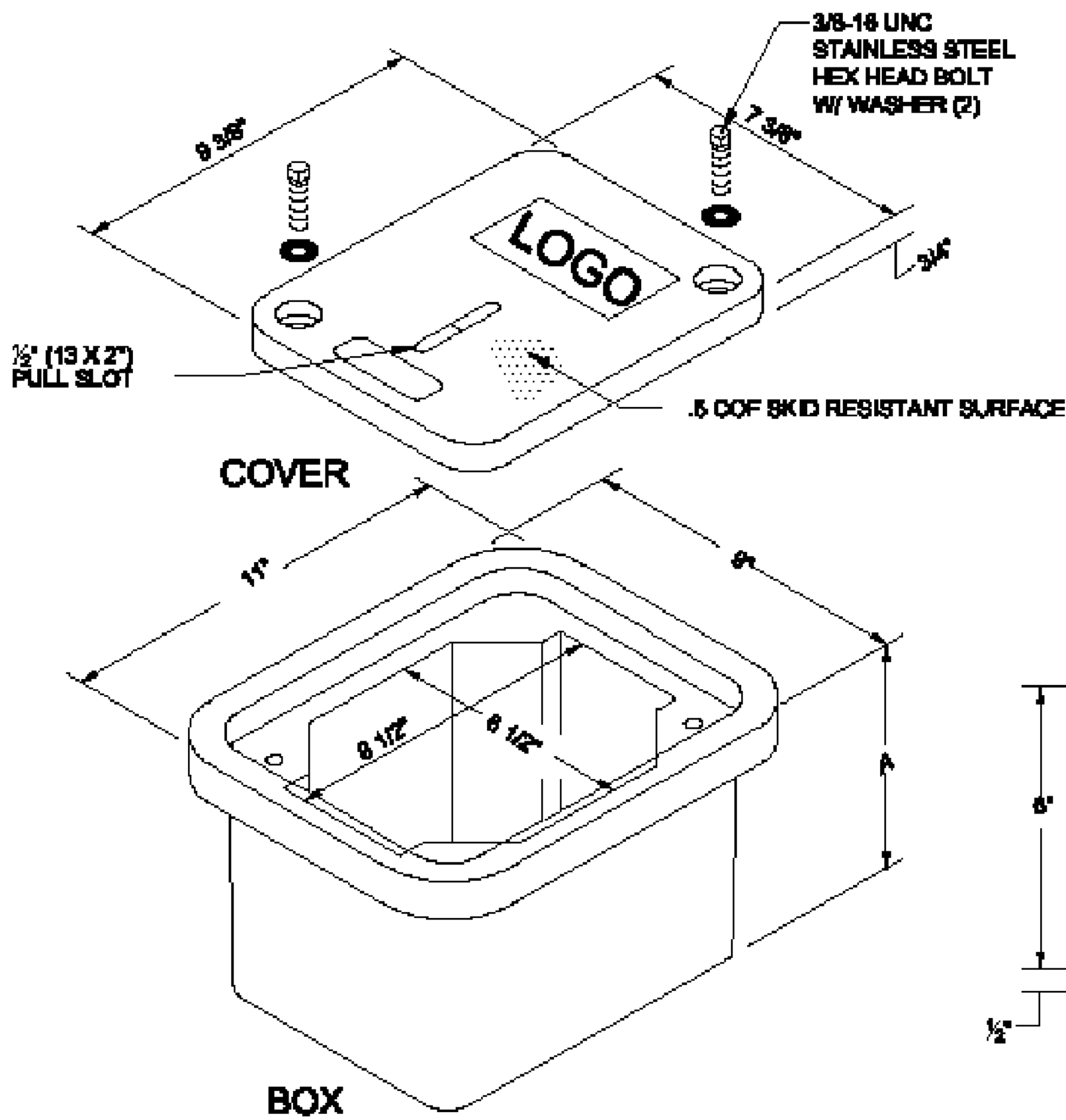
- ① ALL AREAS THAT HAVE BEEN VEGETATED, UNDER THIS CONTRACT, FOR AT LEAST (60) SIXTY DAYS, SHALL RECEIVE ADDITIONAL APPLICATION(S) OF FERTILIZER(S) OF THE TYPE(S) AND RATE(S) OF APPLICATIONS AS DETERMINED BY SOIL TEST OR AS DIRECTED DURING THE GROWING SEASONS THE CONTRACT IS IN FORCE. GROUND PREPARATION WILL NOT BE REQUIRED FOR THE ADDITIONAL APPLICATIONS.
- ② PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 100% OF THE ACREAGE WILL BE SEEDDED.
- ③ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE WILL BE SEEDDED.
- ④ QUANTITY ESTIMATED ON THE BASIS THAT 50% OF THE ACREAGE VEGETATED MAY REQUIRED TREATMENT.
- ⑤ THIS ITEM MAY BE OMITTED ON AREAS SELECTED BY THE ENGINEER.
- ⑥ BAHIAGRASS WILL NOT BE PERMITTED AS A MULCH MATERIAL.
- ⑦ PROPOSAL QUANTITIES ESTIMATED ON THE BASIS THAT 75% OF THE ACREAGE SEEDDED MAY REQUIRE TOPSOIL

TEMPORARY EROSION CONTROL ITEMS REQUIRED FOR DETOURS

ITEM	RATE	SEASONAL LIMITATIONS
STANDARD GROUND PREPARATION	---	---
COMBINATION FERTILIZER (13–13–13)	500 LBS/ACRE	---
SEEDING (BERMUDA GRASS)	10 LBS/ACRE	---
SEEDING (TALL FESCUE)	20 LBS/ACRE	AUGUST 15 TO MARCH 15
VEGETATIVE MATERIAL FOR MULCH	2 LBS/ACRE	---

NOTE: ALL VEGETATION ON THIS PROJECT SHALL BE PAID FOR UNDER AS OUTLINED IN THE BID PROPOSAL. ITEMS SHALL BE APPLIED USING THE RATES OF APPLICATION AS SHOWN ON THIS SHEET AND WILL NOT BE MEASURED FOR SEPARATE PAYMENT.

NO.	DATE	DESCRIPTION	BY
VEGETATION SCHEDULE			
INFRASTRUCTURE REHABILITATION CITY OF HATTIESBURG FORREST COUNTY, MISSISSIPPI			
sdw Engineering Progress 301 Second Ave. Hattiesburg, MS 39401 (p) 601.544.1821 (f) 601.544.0501 sd-w.com			
Drawn by:	SLS	Checked by:	SEM Scale: NONE
Date:	05–04–2018	Working No.	VS1
Drawing No.:	11258	Sheet No.	24

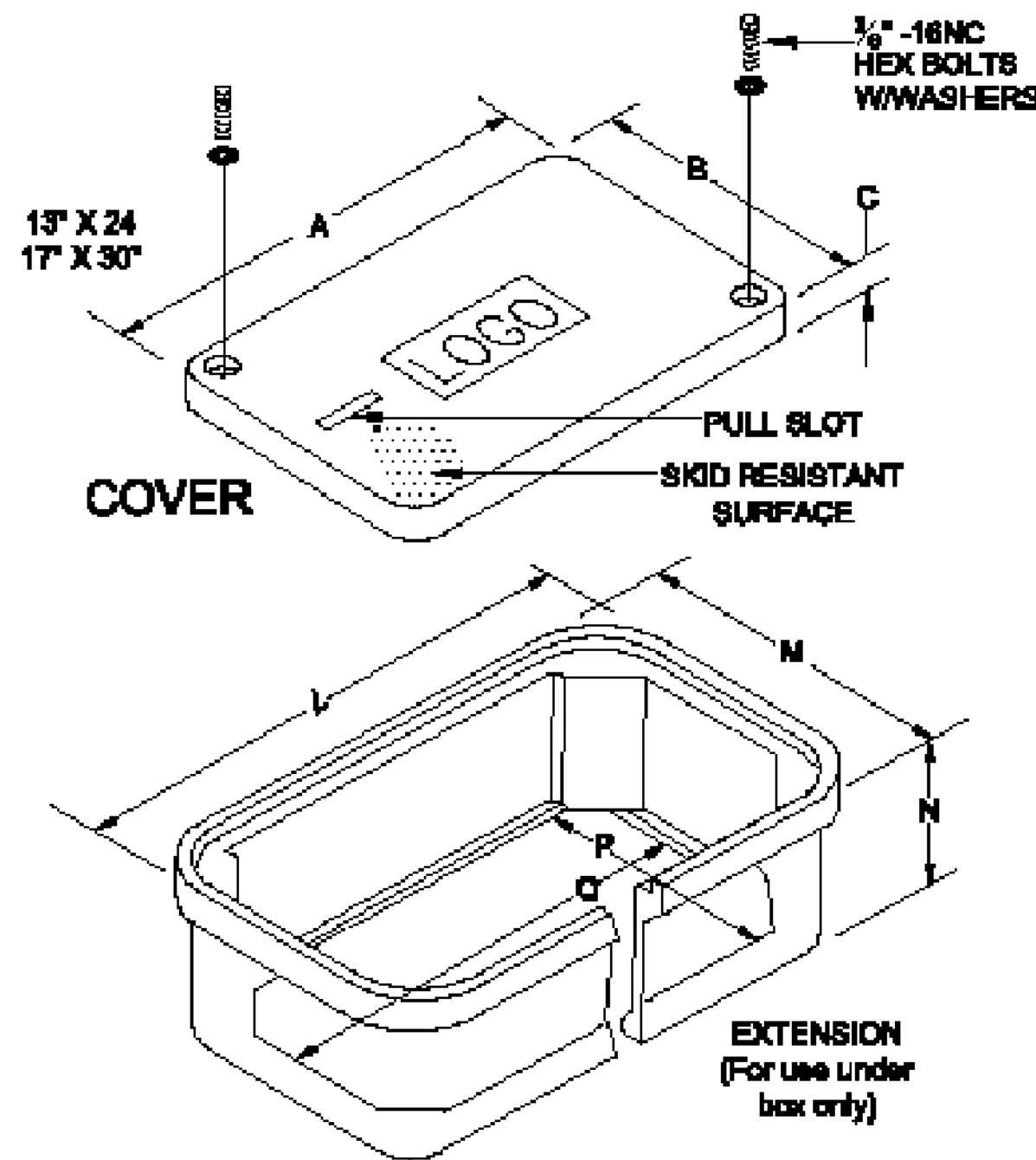


TYPE 1 PULLBOX
NOT TO SCALE

Covers (blank unless logo is specified)

DESCRIPTION	WEIGHT #	DESIGN/TEST LOAD #	ANSI TIER
W/2 Bolts	4	8,000 / 12,000	8
Gasketed w/4 Bolts	4	8,000 / 12,000	8

Gasketed covers must be used with a gasketed box. Gaskets reduce the inflow of fluids but do not make the enclosure water tight.

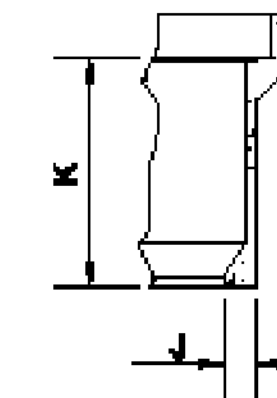
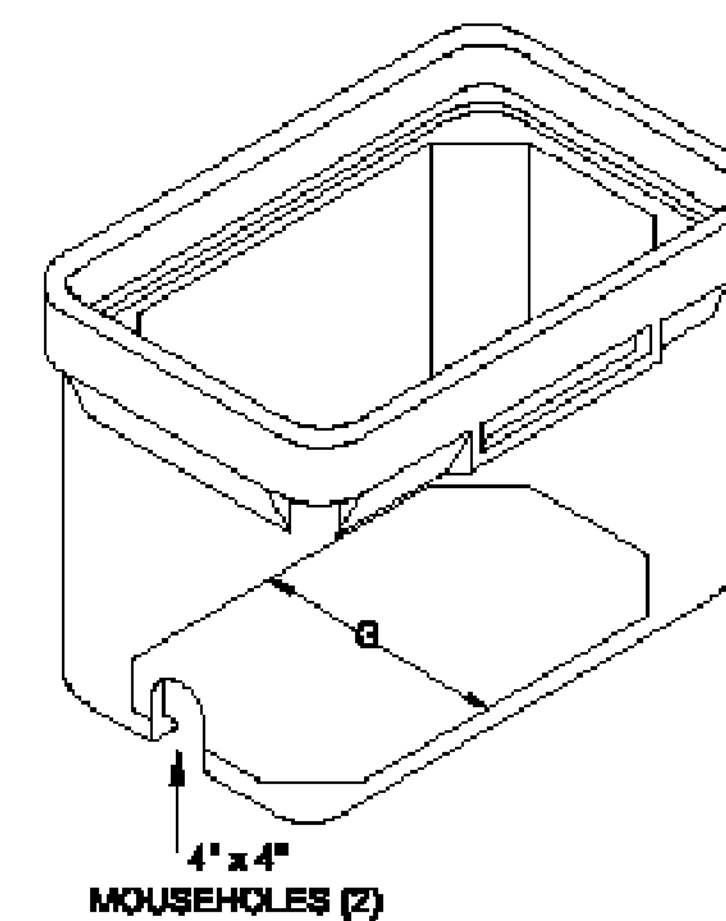


TYPE 2 or 3 PULLBOX
NOT TO SCALE

Boxes (Stackable with self-aligning, replaceable EZ-Nut)

DESCRIPTION	WEIGHT #	DIMENSION A	DESIGN/TEST LOAD #	ANSI TIER
Open Bottom	12	8 3/4"	15,000 / 22,500	15
Open Bottom w/Gasket	12	8 3/4"	15,000 / 22,500	15
Solid Bottom	14.5	7 1/4"	15,000 / 22,500	15
Solid Bottom w/Gasket	14.5	7 1/4"	15,000 / 22,500	15

Dimensions & weights in parentheses are metric equivalents.



- OPTIONS
1. Stainless steel standard penta-head bolt.
 2. Specific cover logo.
 3. Green or other colors
 4. Special holes/knockouts

Covers (blank unless logo is specified)

DESCRIPTION	DIMENSION (IN.)			WT. LBS.
	A	B	C	
Locking Cover	23 3/4	13 3/4	2	32
Non-Locking Cover	30 1/2	17 1/2	2	47
Steel Locking Cover	23 3/4	13 3/4	2	65
Heavy Duty Locking Cover	23 3/4	13 3/4	2	50

DESCRIPTION	DIMENSION (IN.)							WT. LBS.
	D	E	F	G	H	J	K	
Standard Box	25	15 1/2	12	8 3/4	18 3/4	1 1/4	10	58
	25	15 1/2	18	8 3/4	18 3/4	1 1/4	18	82
	32 1/4	18 1/4	12	13 1/2	26 1/2	1 1/4	10	82
	32 1/4	18 1/4	18	13 1/2	26 1/2	1 1/4	18	94
Box w/ Mouseholes	32 1/4	18 1/4	22	13 1/2	26 1/2	1 1/4	20	106
	25	15 1/2	12	8 3/4	18 3/4	1 1/4	10	49
	25	15 1/2	18	8 3/4	18 3/4	1 1/4	16	61
	22 1/4	18 1/4	12	13 1/2	26 1/2	1 1/4	10	80
Box w/ Solid Base	32 1/4	18 1/4	18	13 1/2	26 1/2	1 1/4	18	80
	32 1/4	18 1/4	22	13 1/2	26 1/2	1 1/4	20	104
	25	15 1/2	18 1/2	N/A	N/A	N/A	18	73
	32 1/4	18 1/4	18 1/2	N/A	N/A	N/A	18	106

*Not to be used for extensions.

Extensions (For use under box only)

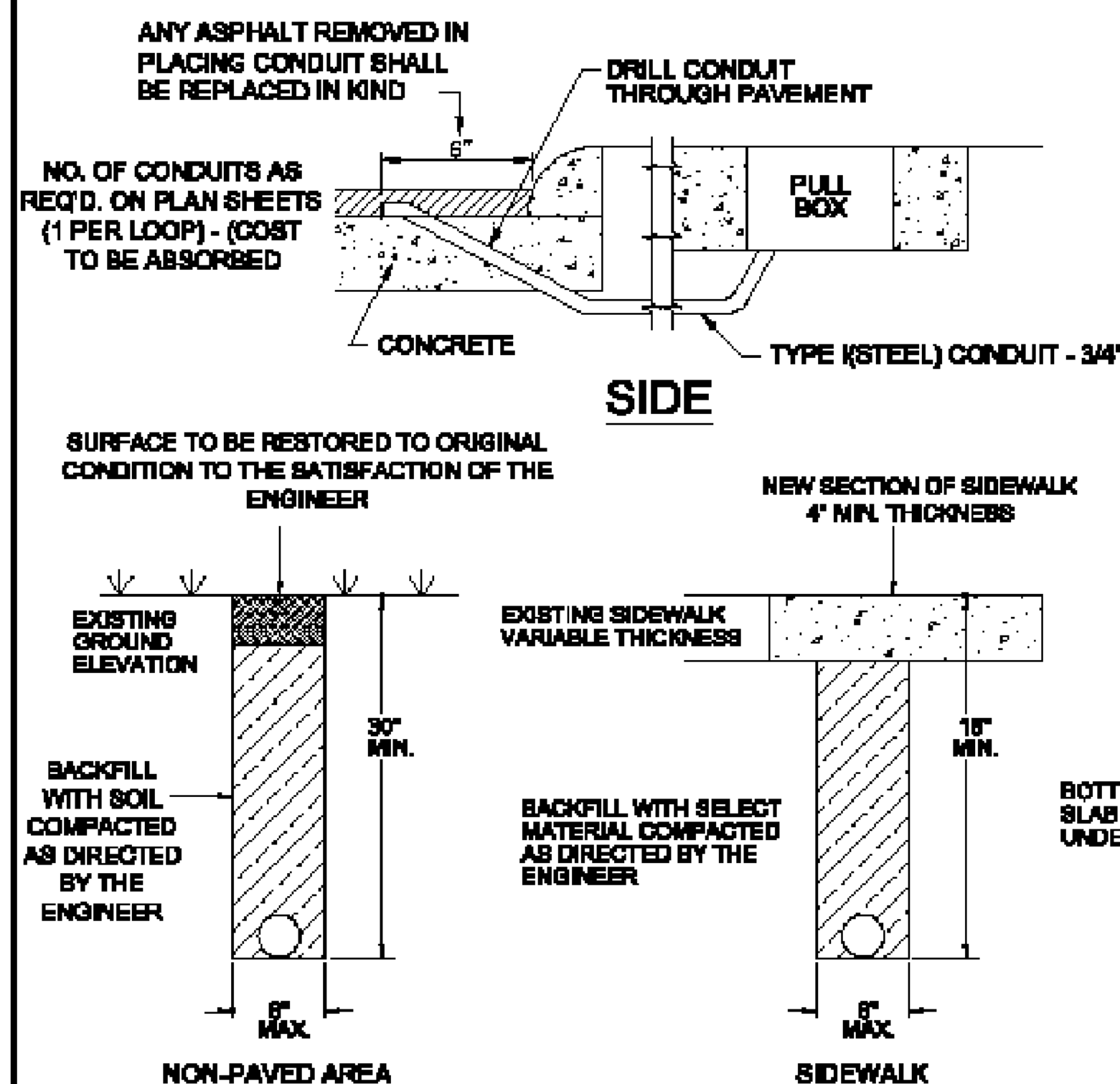
DESCRIPTION	DIMENSION (IN.)							WT. LBS.
	L	M	N	P	Q	R	S	
Extension (One Per Box)	23 3/4	14 3/4	8 3/4	10 3/4	18 3/4	8	1	25
Extension w/ Solid Base	30 1/2	17 1/2	8 3/4	13 1/2	26 1/2	8	1	47
Extension	23 3/4	14 3/4	8 3/4	N/A	N/A	8	N/A	35
Extension w/ Solid Base	30 1/2	17 1/2	8 3/4	N/A	N/A	8	N/A	65

Underground enclosures shall be Composite. Enclosures and covers shall be concrete gray color and rated for no less than 8,000 lbs. over a 10" x 10" area and be designed and tested to temperatures of -80 F. Material compressive strength shall be no less than 11,000 psi. Covers shall have a minimum coefficient of friction of .5. Boxes shall be stackable for extra depth.

NOMINAL PULLBOX SIZES

TYPE 1	TYPE 2	TYPE 3
8" x 11" x 6 3/4"	15" x 25" x 18"	19" x 32" x 24"

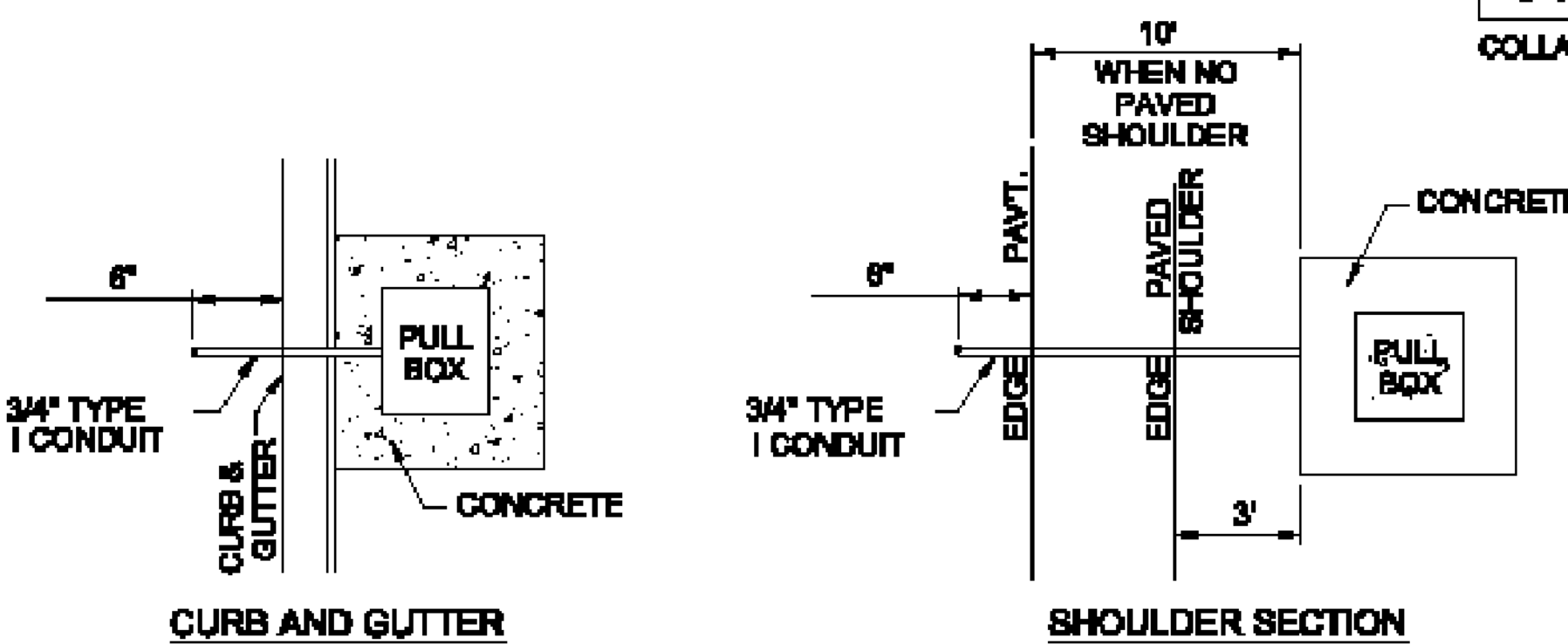
COLLARS AND GRAVEL UNDER PULLBOX REQUIRED FOR ALL TYPES OF PULLBOXES



CONDUIT TRENCHING DETAIL
NOT TO SCALE

CONDUIT NOTES:

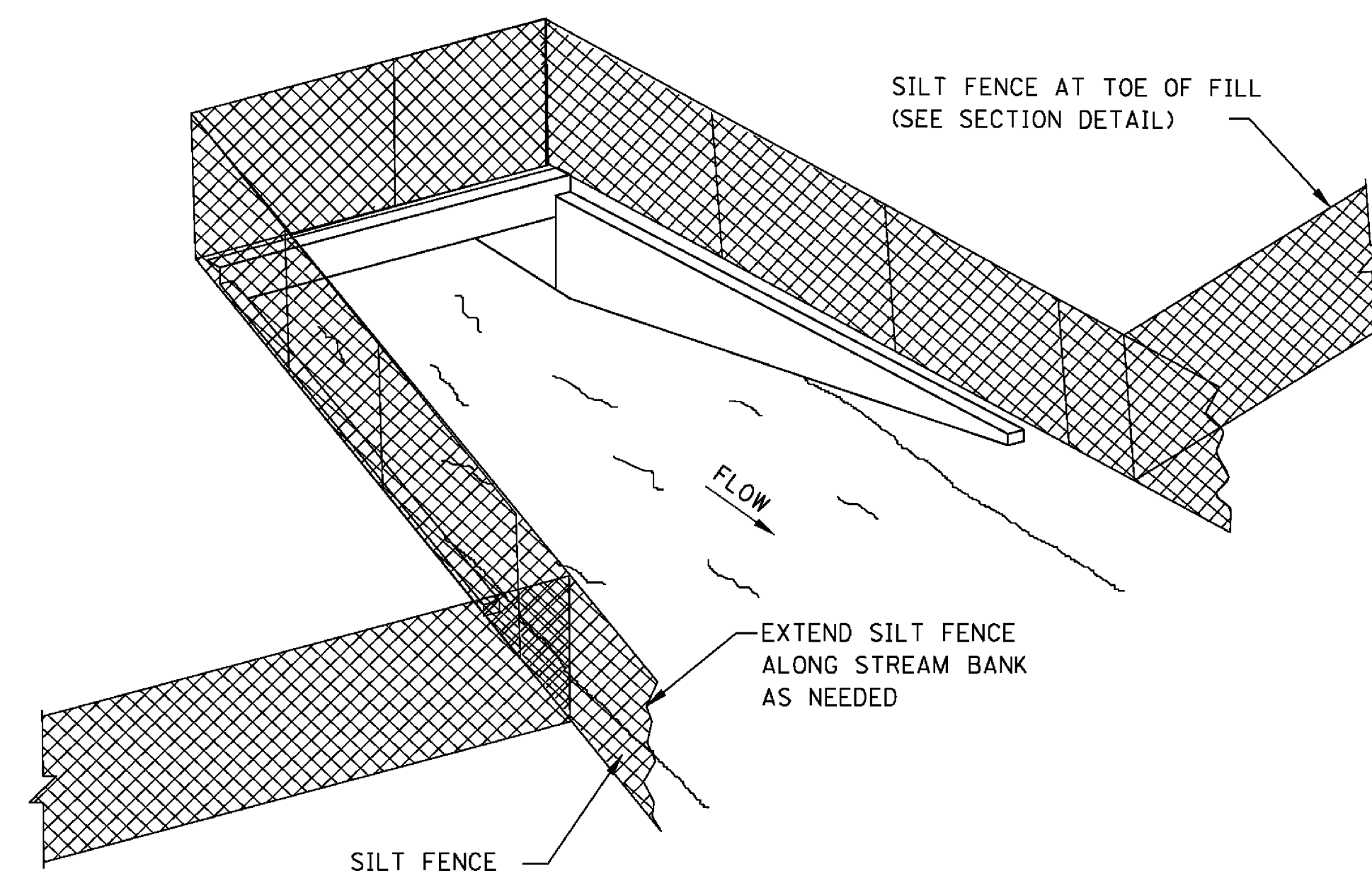
1. CONDUIT TO BE SEALED WITH DUCT SEALER ONCE CABLE IS INSTALLED.
2. SAWCUT SIDEWALK AT EXISTING JOINTS AND REPLACE ENTIRE SECTION TO MATCH EXISTING MATERIAL. WHEN NEW SIDEWALK IS BEING CONSTRUCTED, CONDUIT, PULLBOX, AND POLE ARE TO BE INSTALLED BEFORE SIDEWALK IS POURED.
3. TYPE I CONDUIT IS RIGID PIPE; TYPE IV CONDUIT IS PVC.
4. ELECTRICAL SUBCONTRACTOR SHALL COORDINATE CONDUIT INSTALLATION WORK UNDER ROADWAY WITH ROADWAY CONSTRUCTION PHASING IN ORDER TO MINIMIZE JACKING.
5. MATERIAL REMOVED THAT IS NOT SUITABLE FOR BACKFILL OR IS EXCESS SHALL BE DISPOSED OF BY THE CONTRACTOR. (COST ABSORBED)



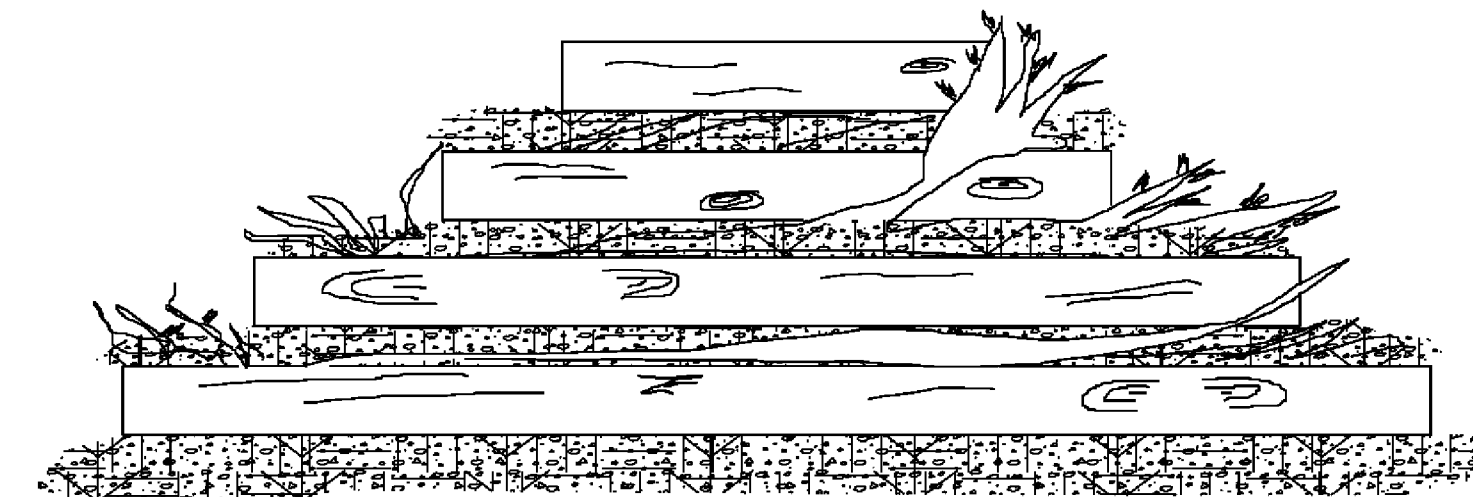
PULL BOX LOCATION DETAIL
NOT TO SCALE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION			
PULL BOX AND CONDUIT TRENCHING DETAILS FOR TRAFFIC SIGNAL INSTALLATION			
PROJECT NO.:			
COUNTY:			
FILENAME:			
DATE	DESIGN TEAM	CHECKED	DATE
WORKING NUMBER			
TSD-3			
SHEET NUMBER			
25			

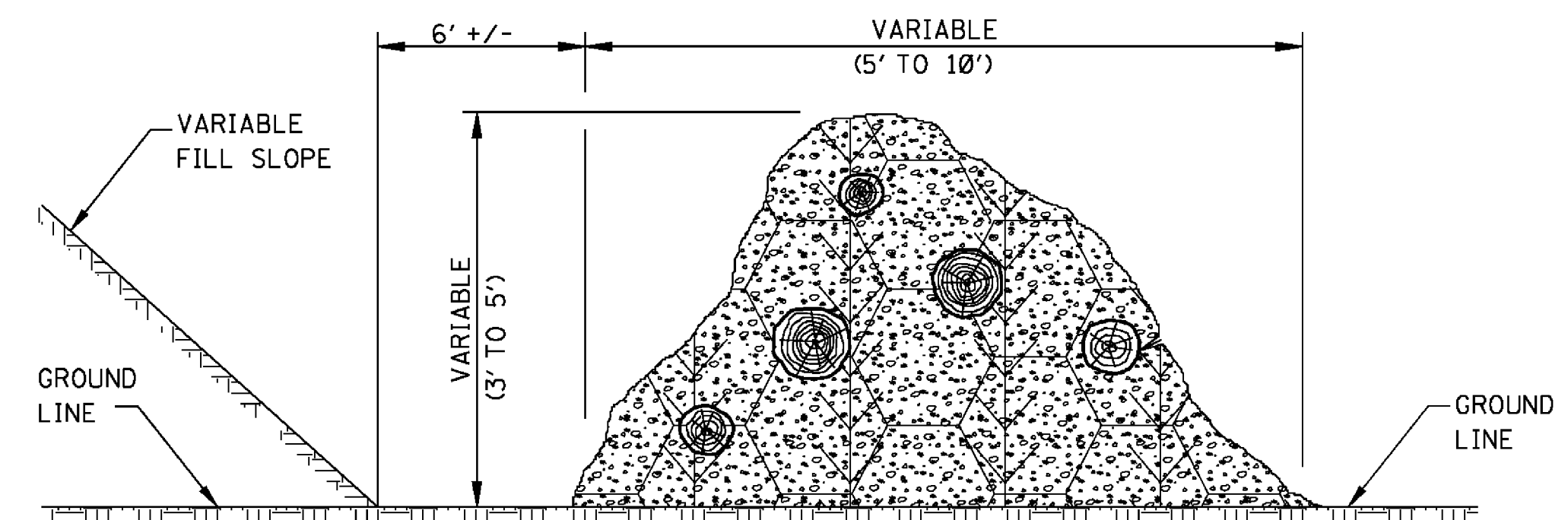
STATE	PROJECT NO.
MISS.	



SEDIMENT BARRIER AT CROSS DRAIN



FRONT ELEVATION



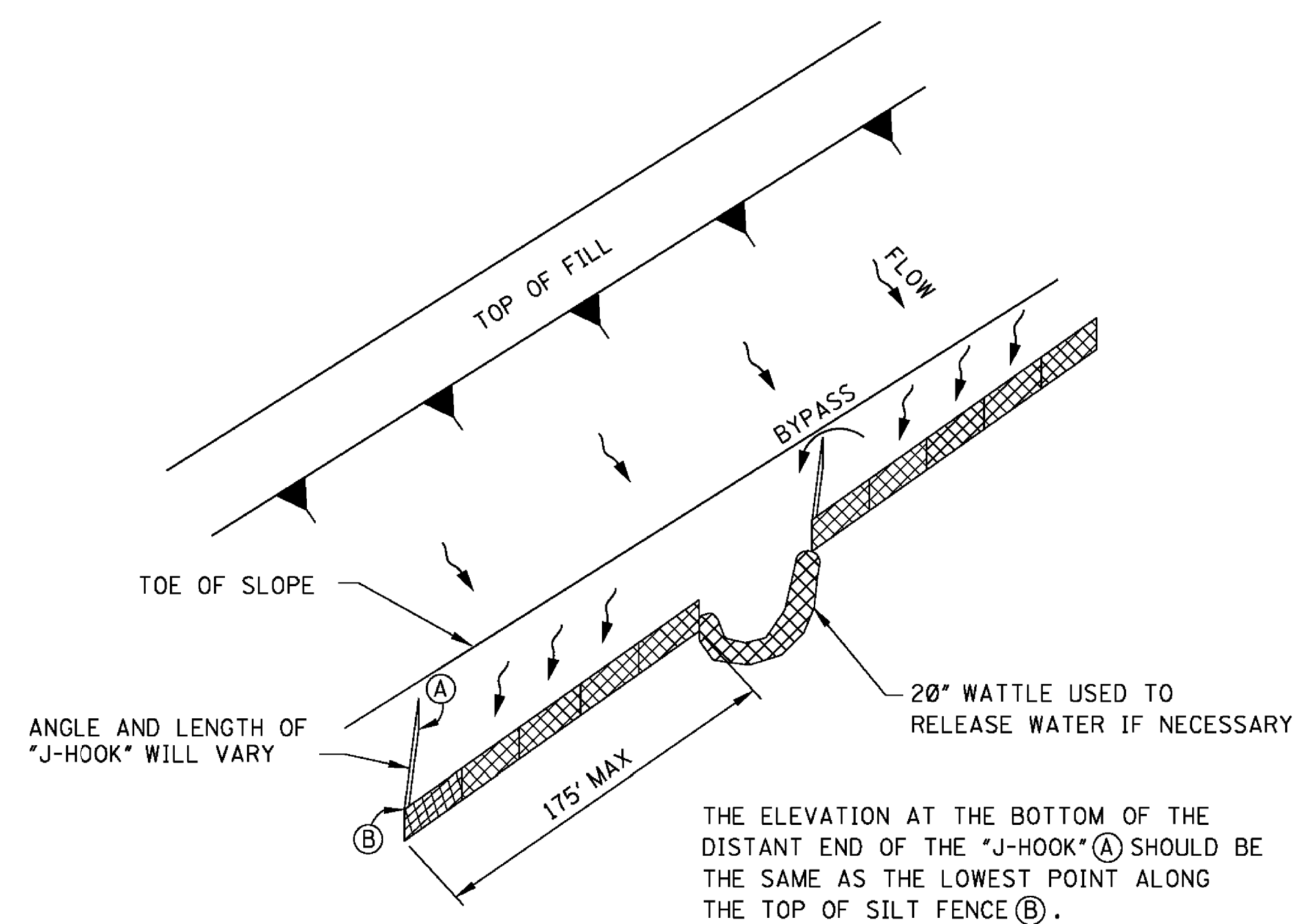
SIDE ELEVATION

TEMPORARY BRUSH BARRIER

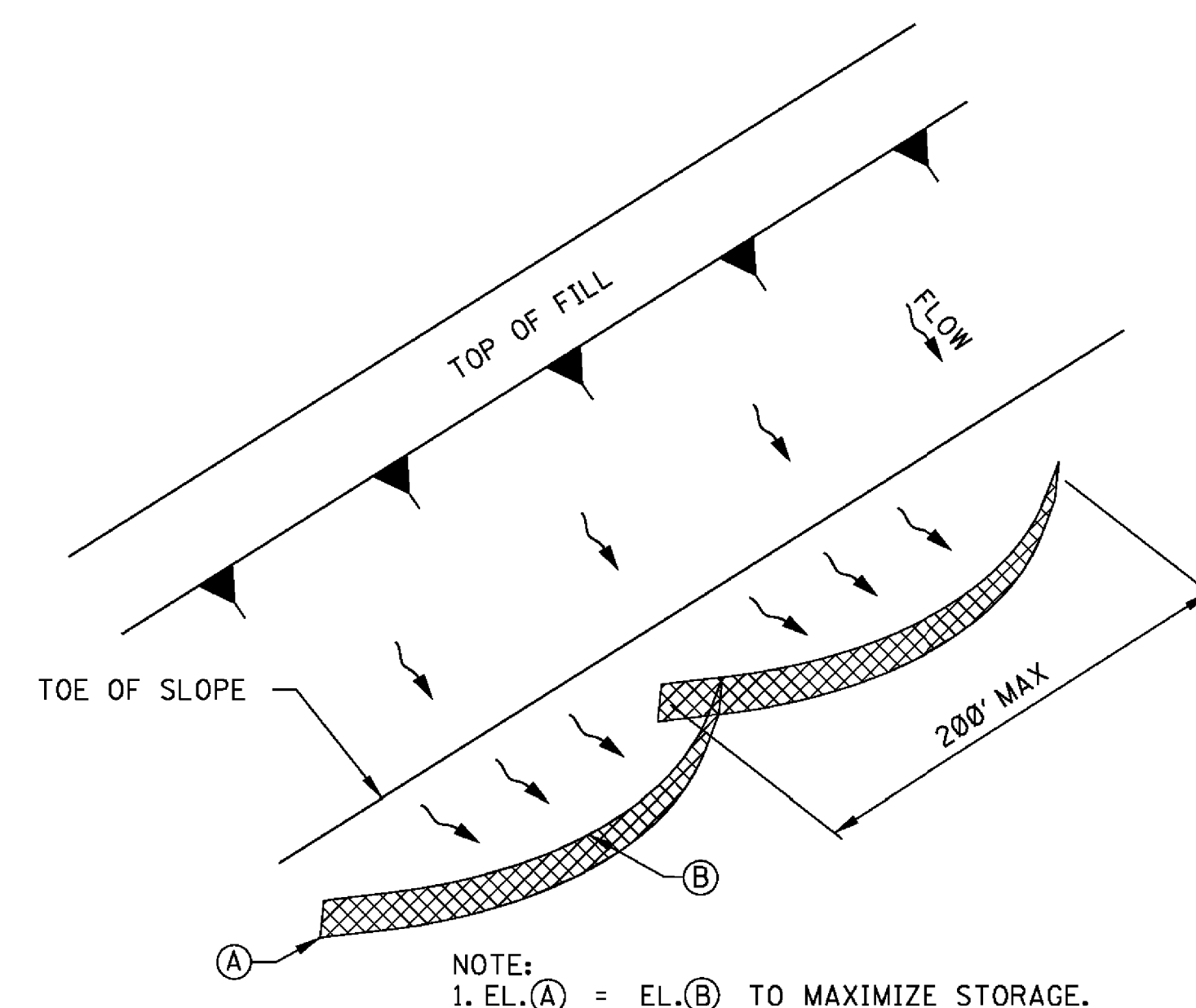
NOTES:

1. BRUSH BARRIER MAY BE USED WHERE NATURAL GROUND IS LEVEL OR SLOPING AWAY FROM PROJECT.
2. PLACE BRUSH, LOG AND TREE LAPS APPROXIMATELY PARALLEL TO TOE OF FILL SLOPE WITH SOME OF THE HEAVIER MATERIALS BEING PLACED ON TO TO PROPERLY SECURE THE BARRIER AS DETAILED AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED OR PERMITTED BY THE ENGINEER.
3. TO ALLOW WATER TO SEEP THROUGH BRUSH BARRIER, INTERMINGLE THE BRUSH, LOG AND TREE LAPS SO AS NOT TO FORM A SOLID DAM.
4. THE BRUSH BARRIER MAY BE CHOKED WITH FILTER FABRIC. THE COST OF FABRIC TO BE INCLUDED IN OTHER ITEMS BID.
5. TEMPORARY BRUSH BARRIER WILL NOT BE MEASURED FOR SEPARATE PAYMENT.

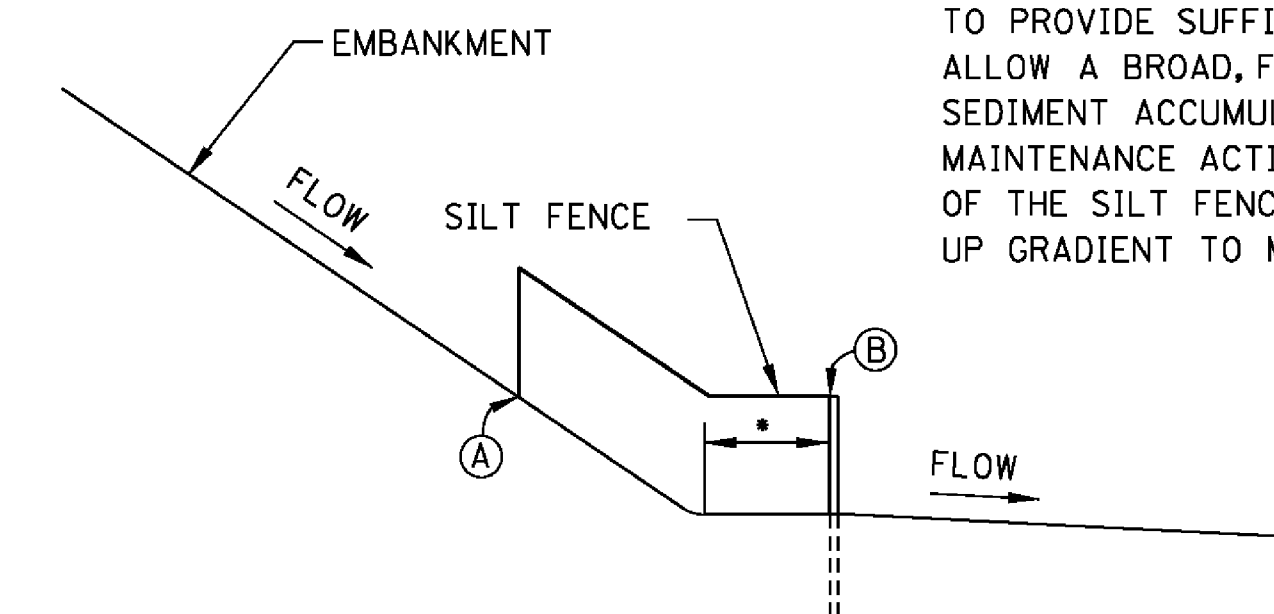
NOTE: ANCHOR AND INSTALL SILT FENCE PER DETAILS SHOWN ON WK. NO. ECD-3



"J-HOOK" SILT FENCE APPLICATION



"SMILE-CONFIGURATION" SILT FENCE APPLICATION

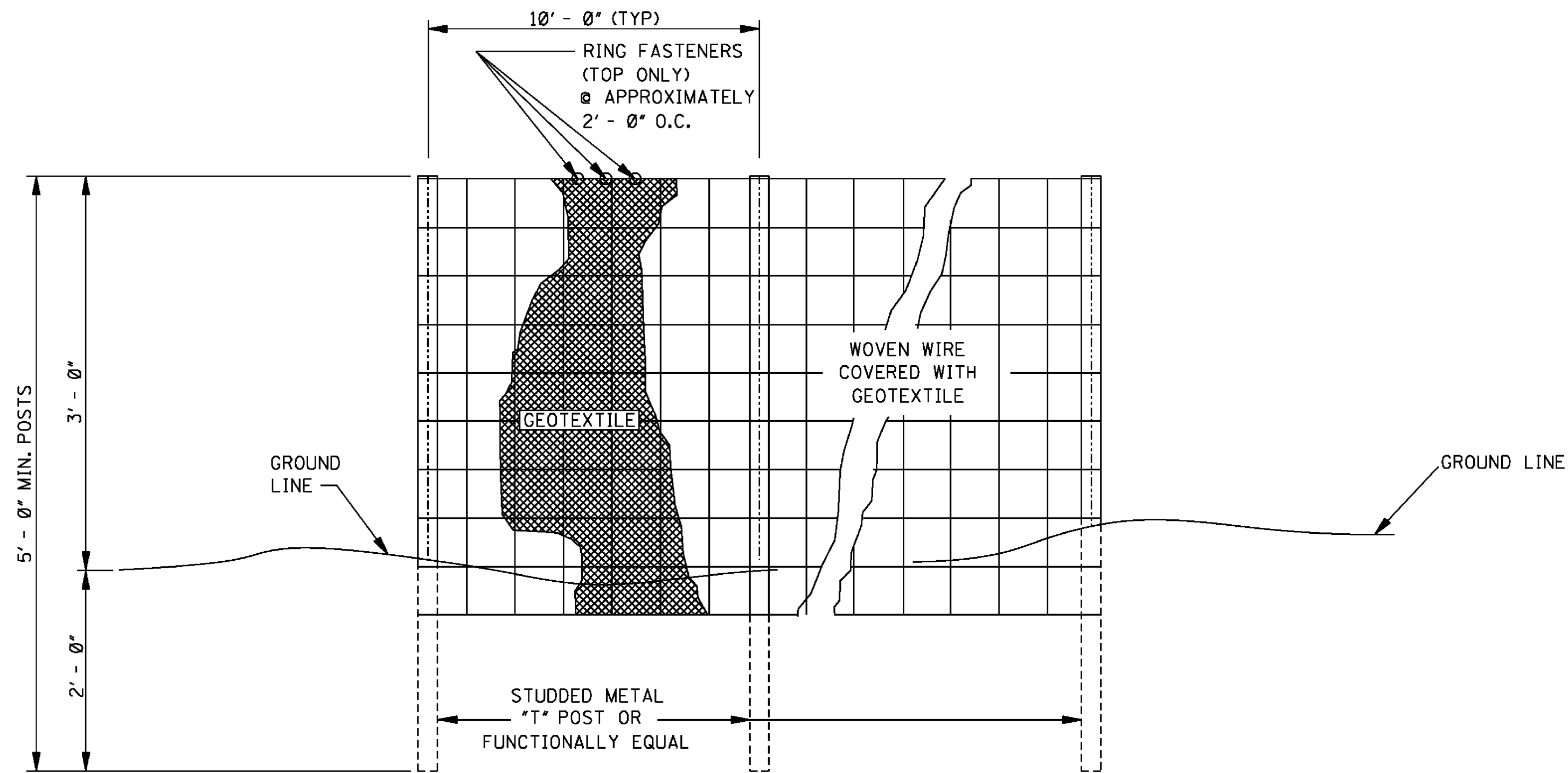


SILT FENCE SECTION AT
TOE OF FILL

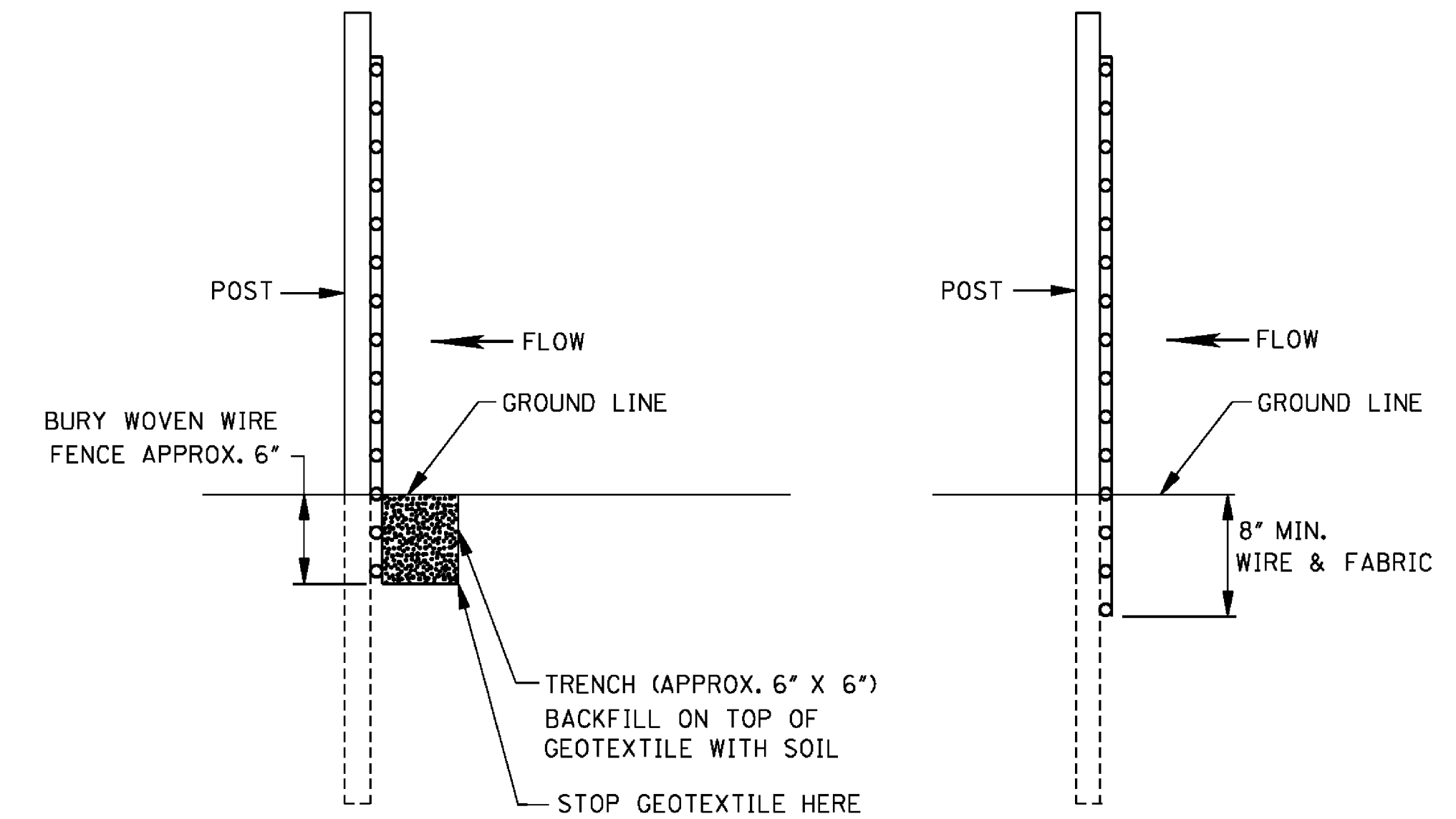
- SILT FENCE SHOULD BE LOCATED AWAY FROM THE TOE OF THE SLOPE TO PROVIDE SUFFICIENT SPACE TO ALLOW A BROAD, FLAT AREA FOR SEDIMENT ACCUMULATION AND MAINTENANCE ACTIVITIES. THE ENDS OF THE SILT FENCE SHOULD BE TURNED UP GRADIENT TO MAXIMIZE STORAGE.

				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN		 WORKING NUMBER ECD-2 SHEET NUMBER 6102
				REVISION	<i>DETAILS OF SEDIMENT BARRIER APPLICATIONS</i>		
				DATE	ISSUE DATE: AUGUST 01, 2017		

STATE	PROJECT NO.
MISS.	



ELEVATION VIEW



METHOD I

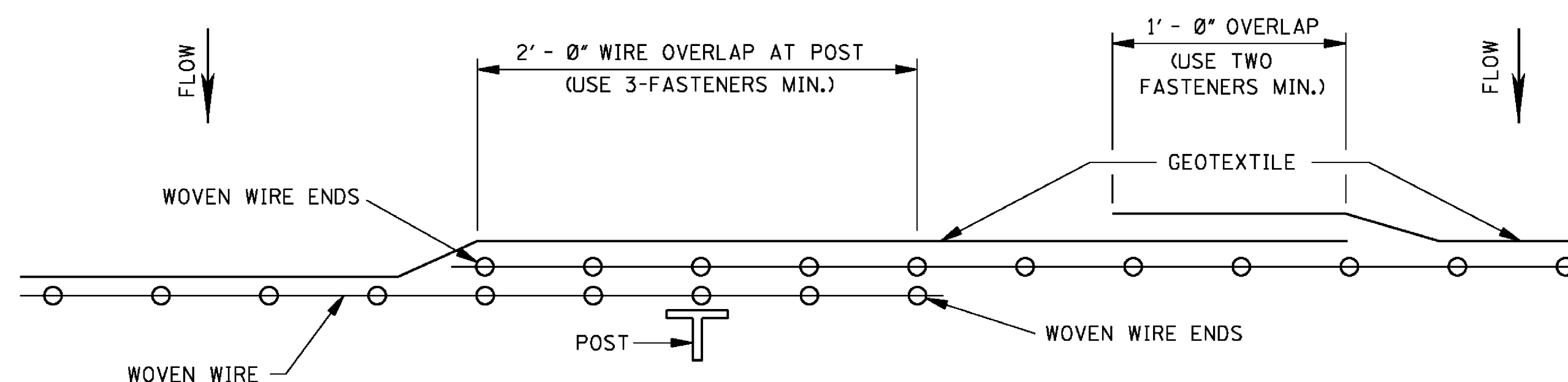
METHOD II

MECHANICAL INSTALLATION

SIDE VIEW

GENERAL NOTES:

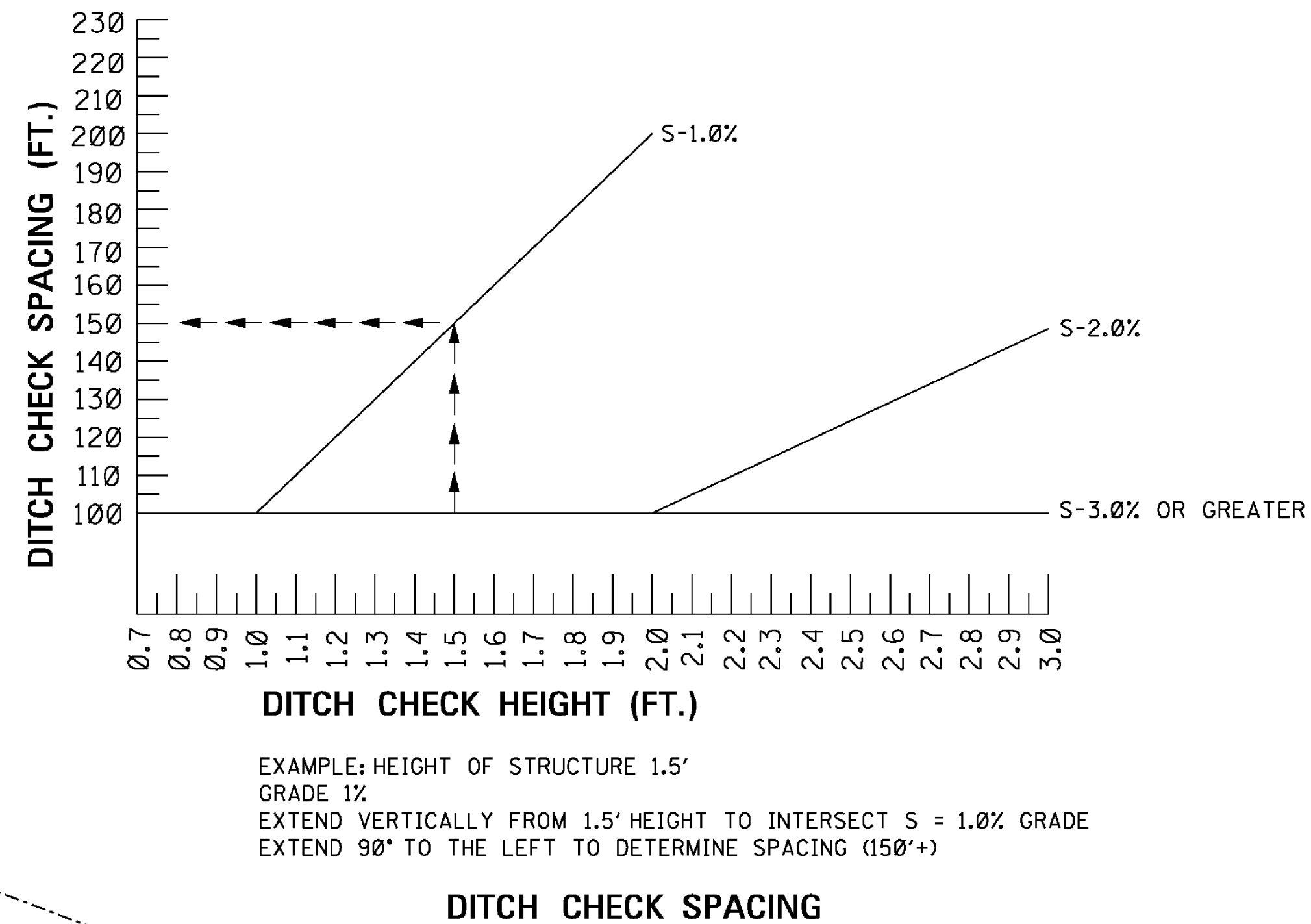
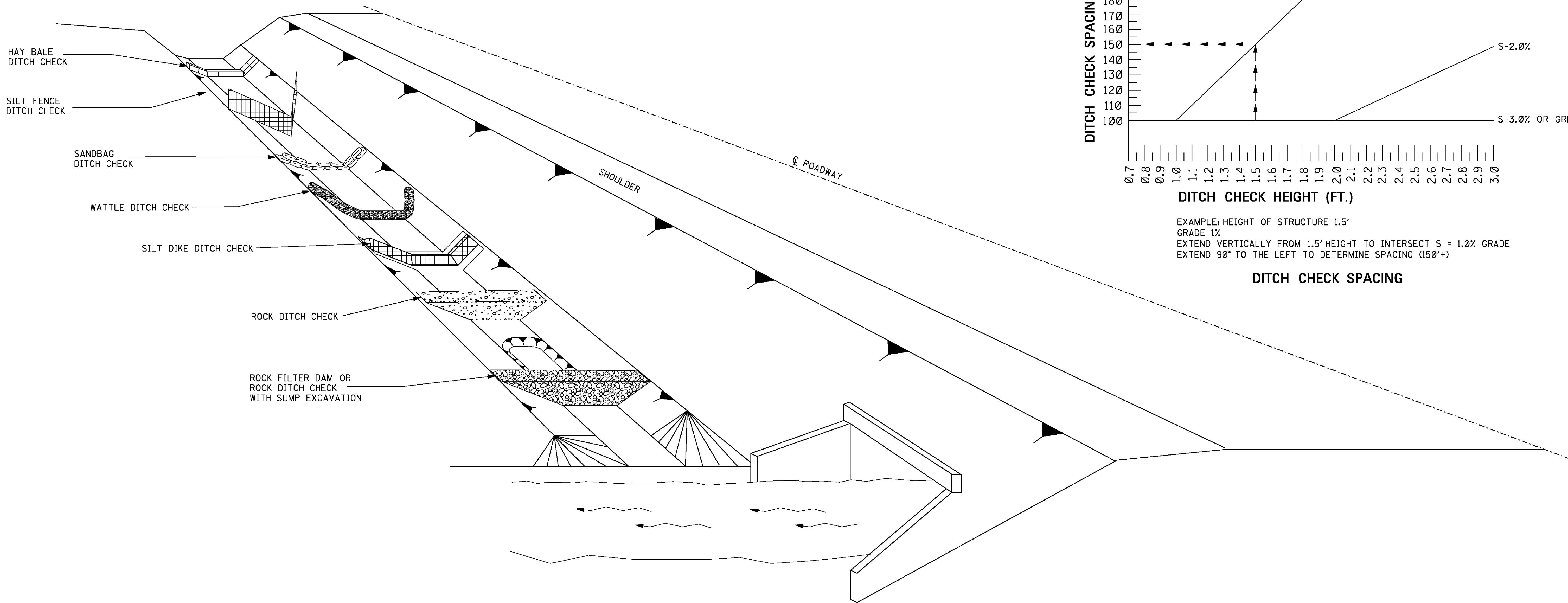
1. SILT FENCES SHOULD BE USED IN AREAS WHERE FLOW IS NOT SEVERE.
2. SILT FENCES ARE TEMPORARY SEDIMENT CONTROL ITEMS THAT SHOULD BE ERECTED OPPOSITE ERODIBLE AREAS SUCH AS NEWLY GRADED FILL SLOPES AND ADJACENT TO STEAMS AND CHANNELS.
3. SILT FENCE SHOULD BE PLACED WELL INSIDE RIGHT-OF-WAY AND ALONG EDGE OF CLEARING LIMITS. THIS WILL ALLOW ROOM FOR BACK-UP FENCE IF FIRST FENCE BECOMES FULL.
4. WHENEVER POSSIBLE SILT FENCE SHOULD BE CONSTRUCTED ACROSS A LEVEL AREA IN THE SHAPE OF A SMILE. THIS AIDS IN PONDING OF RUNOFF AND FACILITATES SEDIMENTATION.
5. THE CONTRACTOR MAY ELECT TO USE EITHER METHOD I OR METHOD II. COST TO BE LINEAR FEET OF SILT FENCE.
6. METHOD II INSTALLATION SHALL BE ACCOMPLISHED USING AN IMPLEMENT THAT IS MANUFACTURED FOR THE APPLICATION AND PROVIDES A CONFIGURATION MEETING THE REQUIREMENTS OF DETAIL.
7. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
8. GEOTEXTILE FABRIC MEETING THE TYPE II MATERIAL REQUIREMENTS AND INSTALLED ACCORDING TO SPECIFICATION MAY BE USED WITHOUT WIRE FENCE.



PLAN VIEW

REQUIRED LAPPING

[illegible]

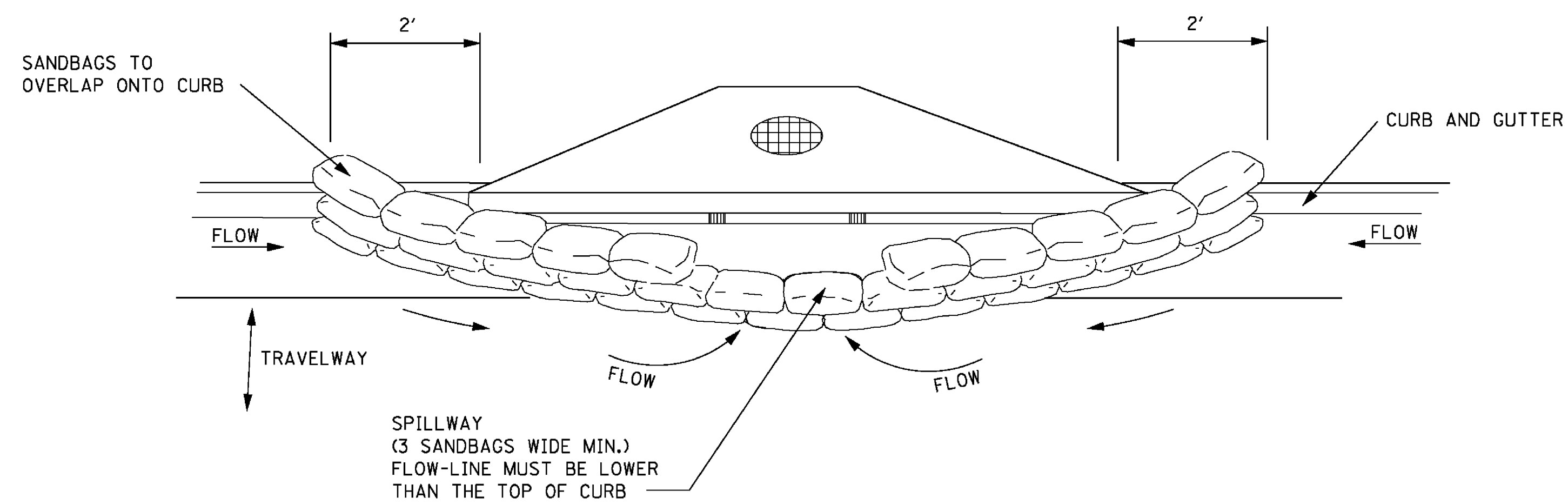


GENERAL NOTES:

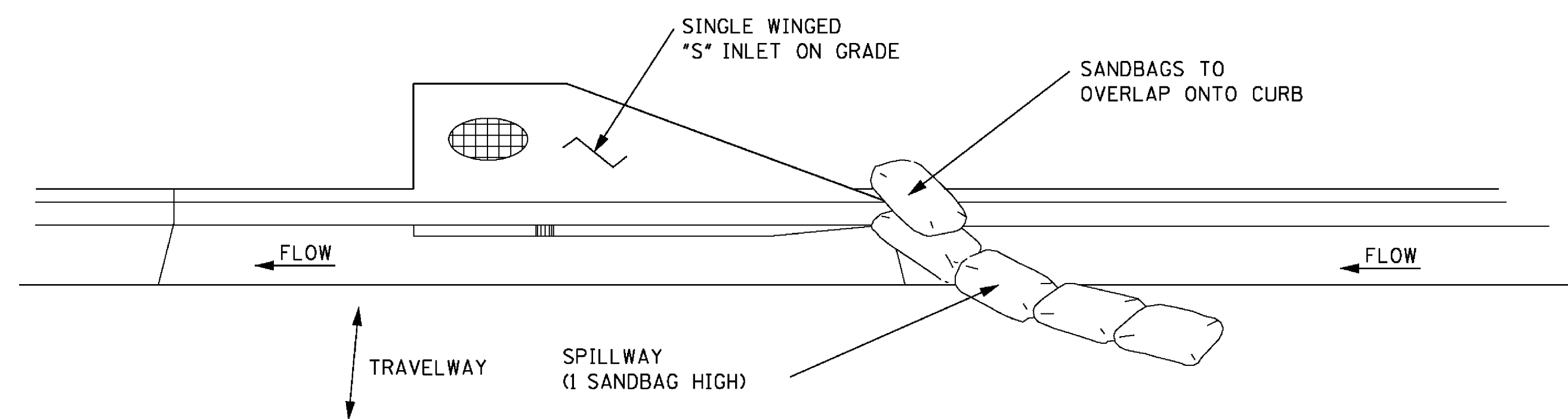
1. THE DITCH CHECK PERSPECTIVE ILLUSTRATES A TOOL BOX OF TEMPORARY PRACTICES THAT MAY BE USED. DITCH CHECKS ARE INSTALLED TO CONTROL RUNOFF VELOCITY AND THUS REDUCE EROSION AND PROVIDE FOR TRAPPING OF SEDIMENTS.
2. SELECTION OF THE APPROPRIATE DITCH CHECK SHOULD BE A FUNCTION OF CONSTRUCTION PHASE, DRAINAGE AREA, DITCH GRADIENT, SOIL TYPE, ECONOMY AND SAFETY.
3. DITCH CHECKS CAN BE REMOVED FOR MAINTENANCE AND/OR REPLACEMENT BUT MUST REMAIN IN PLACE UNTIL UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED. MAINTENANCE INCLUDES REMOVAL OF SEDIMENT BEGINNING WHEN SEDIMENT ACCUMULATION REACHES $\frac{1}{3}$ THE CAPACITY OR HEIGHT OF THE STRUCTURE AND NEVER ALLOWING FOR SEDIMENT TO ACCUMULATE MORE THAN $\frac{1}{2}$ THE VOLUME OR HEIGHT OF THE DITCH CHECK STRUCTURE.
4. HAY BALES SHOULD BE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.
5. SILT FENCE DITCH CHECKS SHOULD BE USED WHERE IT HAS BEEN DETERMINED THAT HAY BALE CHECKS ARE INADEQUATE. SILT FENCE DITCH CHECKS SHOULD BE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.
6. SANDBAG DITCH CHECKS SHOULD BE USED FOR VELOCITY REDUCTION AND MINIMAL SEDIMENT TRAPPING IN CONCRETE PAVED DITCHES OR IN DITCHES THAT HAVE ROCK BOTTOMS.
7. WATTLE DITCH CHECKS CAN BE USED FOR VELOCITY REDUCTION AND CONTROL OF SEDIMENT TRANSPORT UNDER LOW TO MEDIUM FLOW CONDITIONS.
8. SILT DIKES CAN BE USED IN DITCHES WITH CONCENTRATED FLOWS WITHIN THE CLEAR ZONE WHERE RIPRAP CAN NOT BE USED. AS CONSTRUCTION PROGRESSES.
9. ROCK DITCH CHECKS WITH SUMP EXCAVATION CAN BE PLACED IN DITCHES TO ASSURE ON-SITE SEDIMENT TRAPPING REQUIREMENTS ARE MET. DITCH CHECK WITH SUMP EXCAVATION IS USED WHEN DITCHES RECEIVE DRAINAGE FROM CUT OR FILL SLOPES OR OTHER CRITICAL AREAS WHERE SOIL EROSION IS EXPECTED. DRAINAGE AREA FOR A TEMPORARY SEDIMENT TRAP SHOULD BE LIMITED TO 3 ACRES. THEY CAN BE USED IN SERIES TO INCREASE ON-SITE SEDIMENT TRAPPING EFFICIENCY.
10. DITCH CHECKS, IN NO CASE, SHALL BE PLACED IN LIVE STREAMS.
11. CONFIGURATION AND SPACING MAY BE ADJUSTED IF APPROVED BY THE ENGINEER TO ACCOMMODATE TRAVELWAY SAFETY, WATER FLOW, OR SOIL AND INSTALLATION CHALLENGES.

				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN
				REVISION	DITCH CHECK STRUCTURES, TYPICAL APPLICATIONS AND DETAILS
				DATE	ISSUE DATE: AUGUST 01, 2017
					WORKING NUMBER ECD-4 SHEET NUMBER 6104

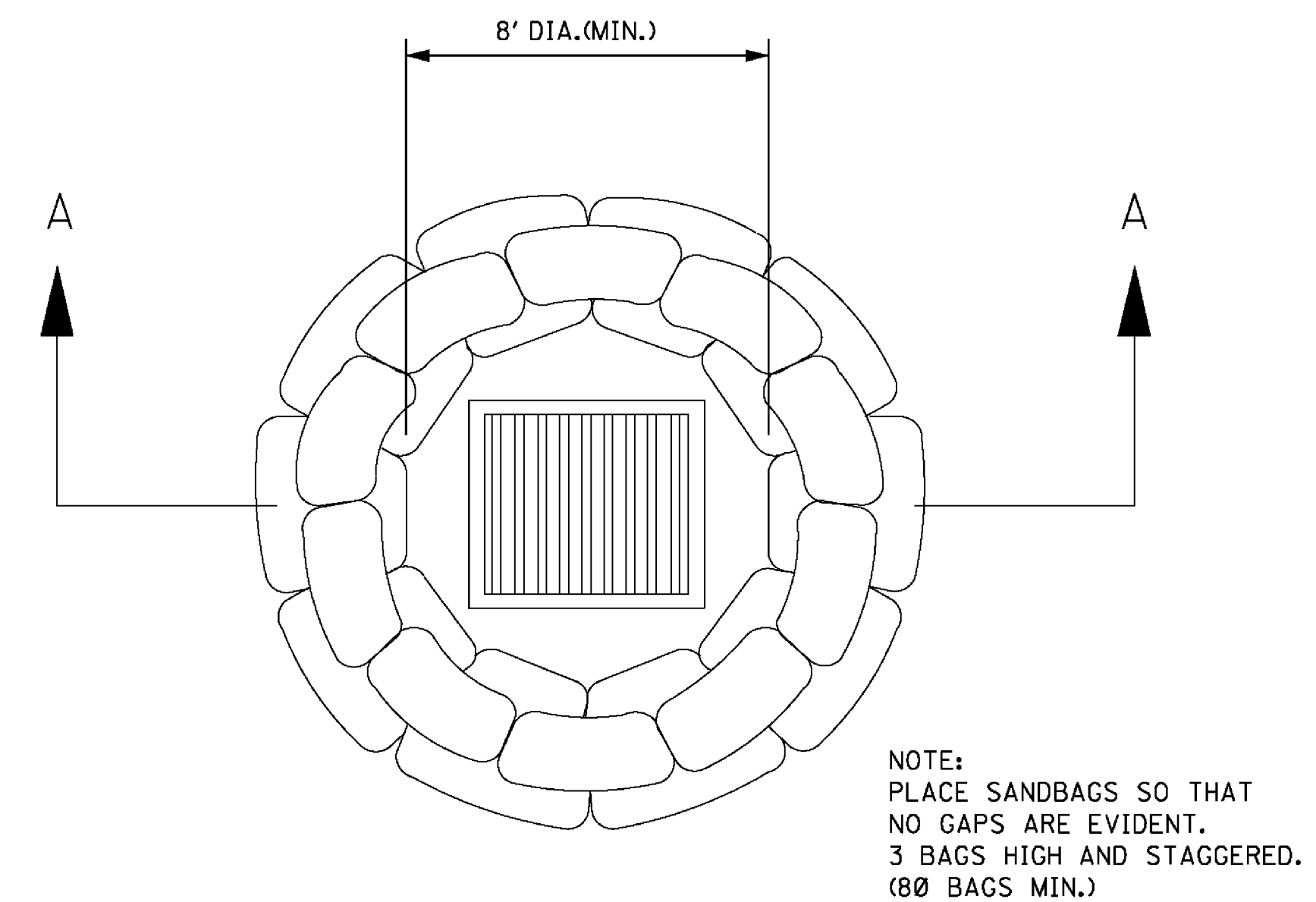
STATE	PROJECT NO.
MISS.	



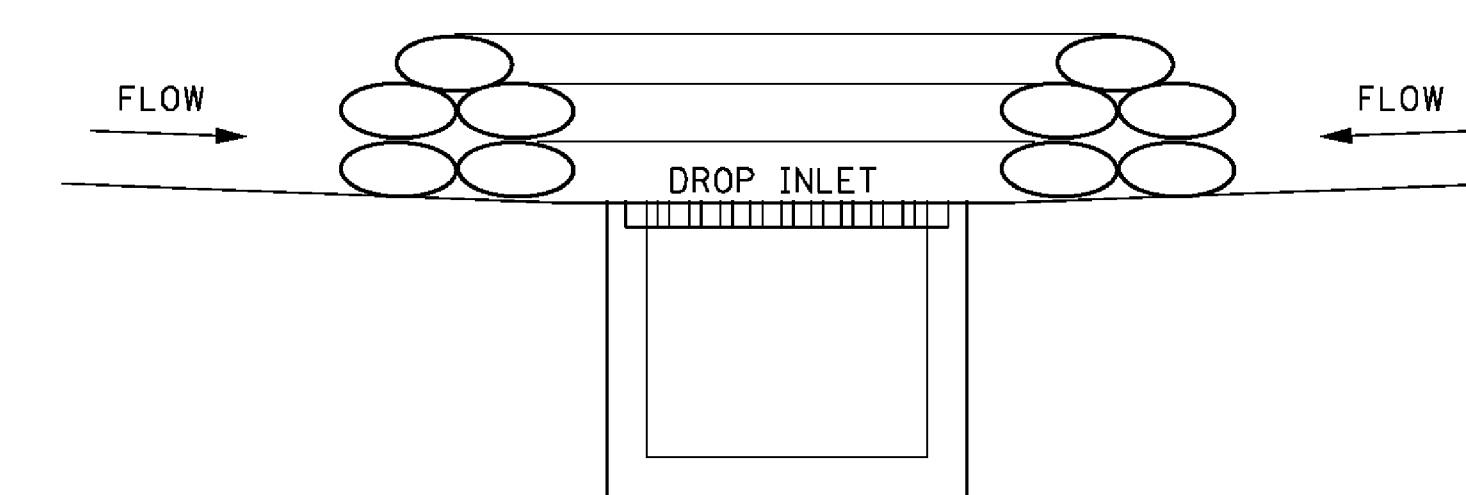
TYPICAL (SANDBAG) PROTECTION FOR INLET IN SAG



TYPICAL (SANDBAG) PROTECTION FOR INLET ON GRADE



DROP INLET
PLAN VIEW

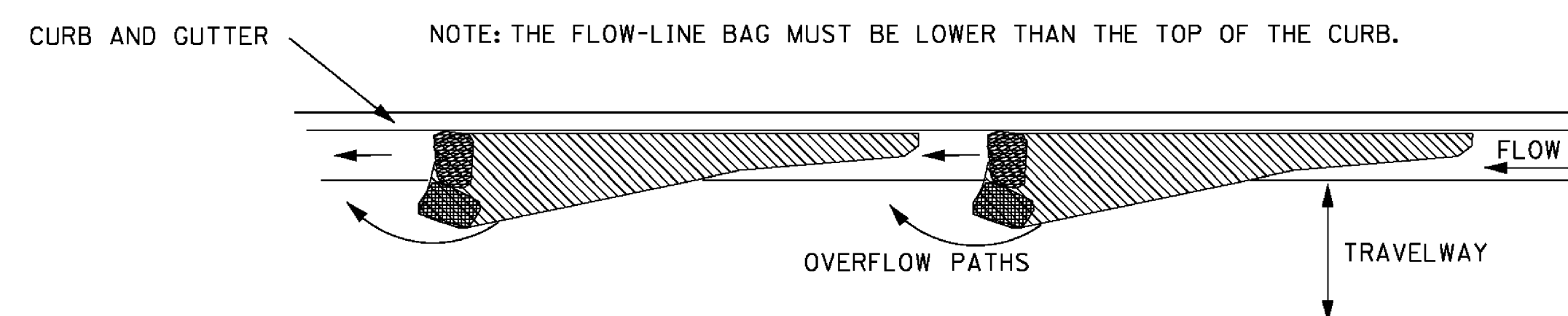


SECTION A-A

SANDBAG BARRIER

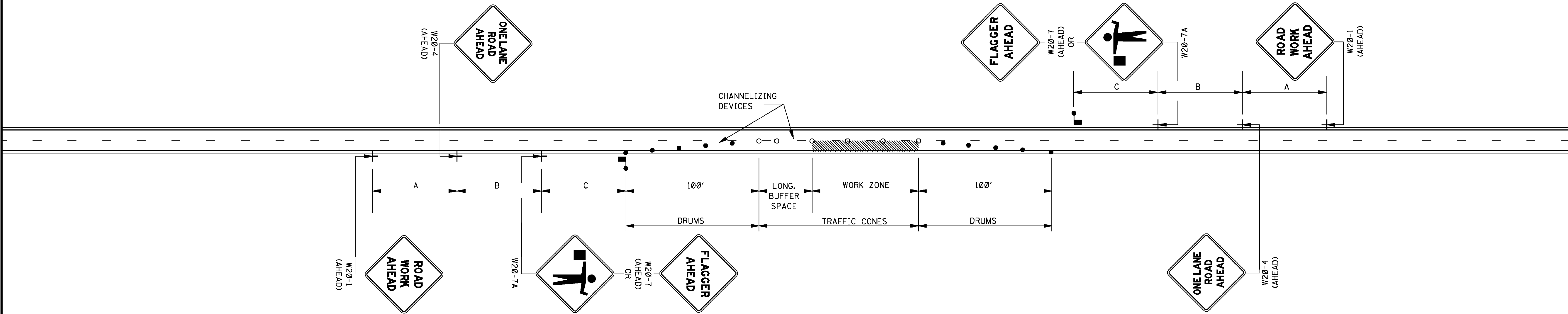
- CURB INLET PROTECTION NOTES:

1. THIS CURB INLET PROTECTION METHOD CAN BE USED DURING ANY STAGE OF BASE AND PAVEMENT CONSTRUCTION.
2. BAG HEIGHT AND NUMBER OF BAGS SHOULD BE BASED ON CURB HEIGHT AND USE OF TRAVELWAY.
3. SEDIMENT SHOULD BE CONTROLLED PRIOR TO ENTERING GUTTER. GUTTER CHECKS AND INLET PROTECTION ARE FOR SECONDARY CONTROL.
4. REMOVE ACCUMULATED SEDIMENT AFTER EVERY RAINFALL. SWEEP SEDIMENT FROM HARD SURFACES AND DISPOSE OF APPROPRIATELY AWAY FROM INLETS AND/OR WATER BODIES.
5. IF DENUDEED AREAS EXIST BEHIND THE INLET, A SEDIMENT BARRIER SHOULD BE INSTALLED AROUND ITS PERIMETER TO CONTROL SEDIMENT.



CURB AND GUTTER SEDIMENT CONTAINMENT SYSTEM

				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN		
				REVISION	<i>INLET PROTECTION DETAILS OF SANDBAGS</i>		 WORKING NUMBER ECD-15
				DATE			
					ISSUE DATE: <u> AUGUST 01, 2017 </u>		SHEET NUMBER 6115



GENERAL NOTES:

1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE. FLAGGER STATIONS SHALL BE LOCATED SUCH THAT APPROACHING VEHICLES WILL HAVE SUFFICIENT DISTANCE TO STOP. VALUES IN STOPPING SIGHT DISTANCE COLUMN MAY BE USED AS A MINIMUM FOR THIS DISTANCE.

POSTED SPEED AND/OR DESIGN SPEED	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		LONGITUDINAL BUFFER SPACE (ft)	STOPPING SIGHT DISTANCE
	TAPER	ALONG LANE LINE & WORK ZONE		
mph				
25	20	50	55	155
30	20	60	85	200
35	20	70	120	250
40	20	80	170	305
45	20	90	220	360
50	20	100	280	425
55	20	110	335	495
60	20	120	415	570
65	20	130	485	645

† NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.

2. ALL CHANNELIZING DEVICES SHALL BE A MINIMUM OF 28" IN HEIGHT.
3. DIAMOND SHAPED TRAFFIC CONTROL SIGNS SHALL BE A MINIMUM OF 36" x 36" AND BLACK COPY ON FLUORESCENT ORANGE SHEETING.
4. WHEN WORK ZONE IS NO LONGER NEEDED, ALL SIGNS SHALL BE COVERED OR REMOVED AND ALL CHANNELIZING DEVICES SHALL BE MOVED TO THE SHOULDER EDGE.
5. ADDITIONAL FLAGGERS MAY BE NEEDED AS DIRECTED BY THE ENGINEER.
6. WHEN WORK IS REQUIRED AT NIGHT, FLAGGER STATIONS SHALL BE ILLUMINATED.
7. CHANNELIZING DEVICE TYPES FOR:
A. APPROACH AND EXIT TAPERS- RETROREFLECTIVE PLASTIC DRUMS
B. ALONG LANE LINE AND WORK ZONE- TRAFFIC CONES (28" HEIGHT)
8. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.

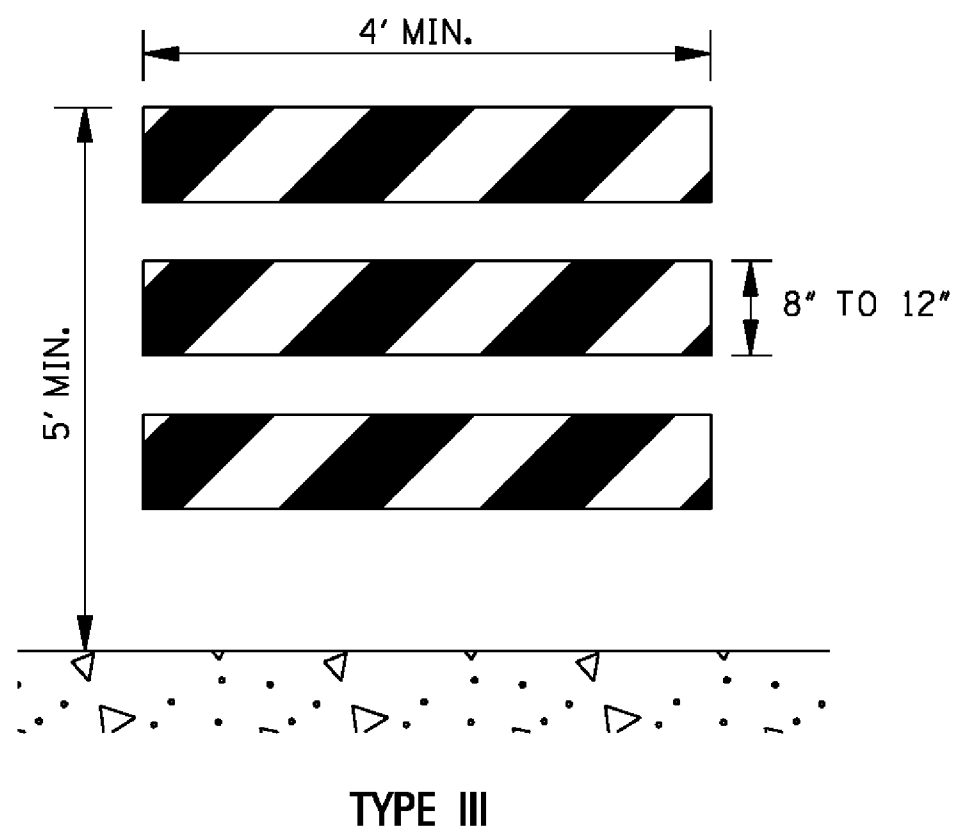
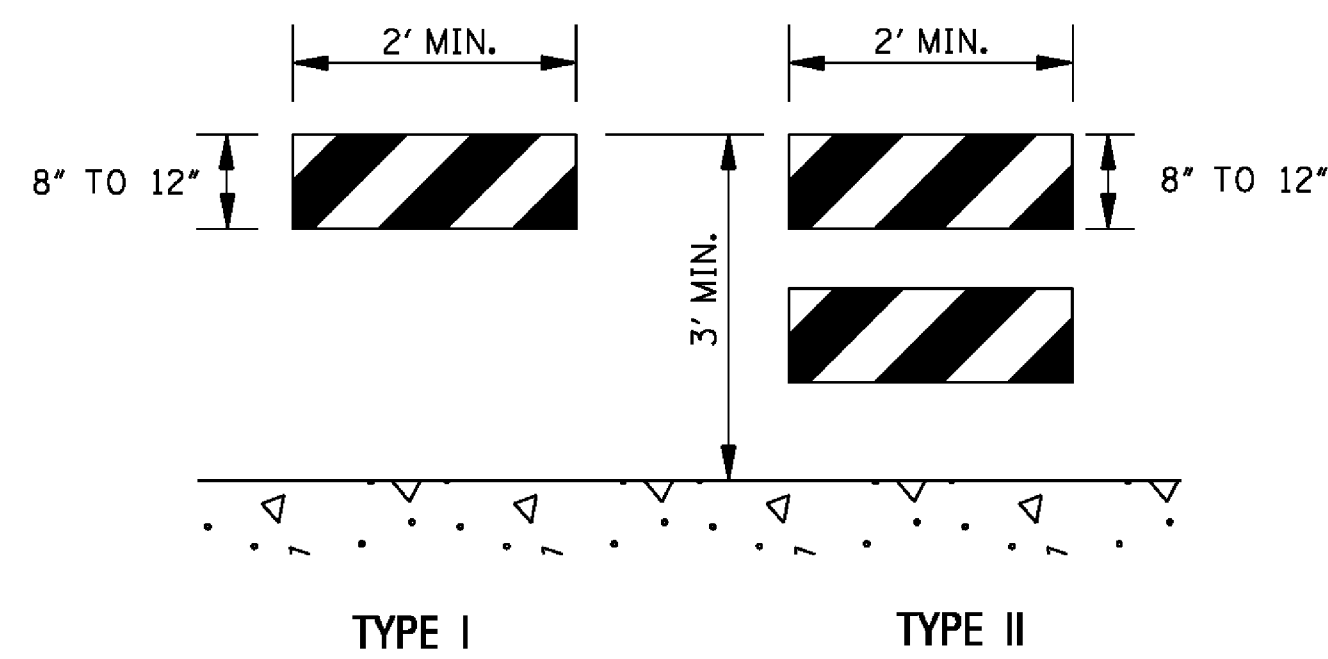
LEGEND

- FLAGGER
- RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS
- TRAFFIC CONES (28" HEIGHT MINIMUM)

DISTANCE BETWEEN SIGNS			
ROAD TYPE	A	B	C
URBAN (35 MPH OR LESS)	100 FT.	100 FT.	100 FT.
URBAN (40 - 70 MPH)	350 FT.	350 FT.	350 FT.
RURAL	500 FT.	500 FT.	500 FT.
EXPRESSWAY / FREEWAY	1000 FT.	1500 FT.	2640 FT.

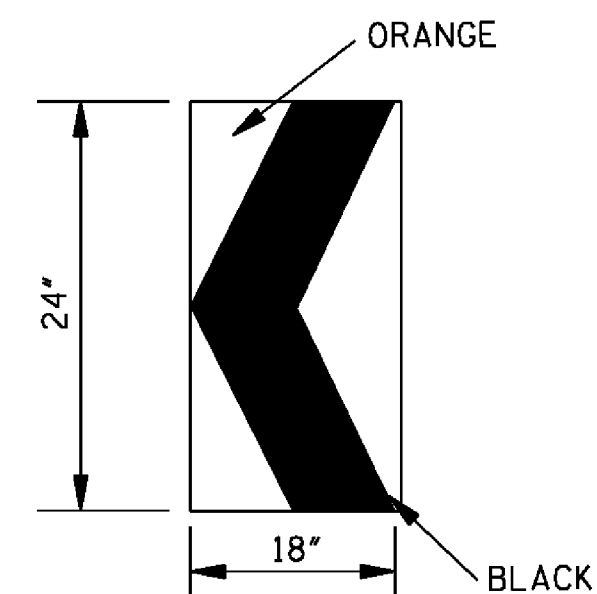
				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN
				REVISION	
				DATE	ISSUE DATE: AUGUST 01, 2017
					TRAFFIC CONTROL PLAN WITH FLAGGER (ONE-LANE CLOSURE OF TWO-WAY TRAFFIC)
					WORKING NUMBER TCP-1
					SHEET NUMBER 6351

STATE	PROJECT NO.
MISS.	



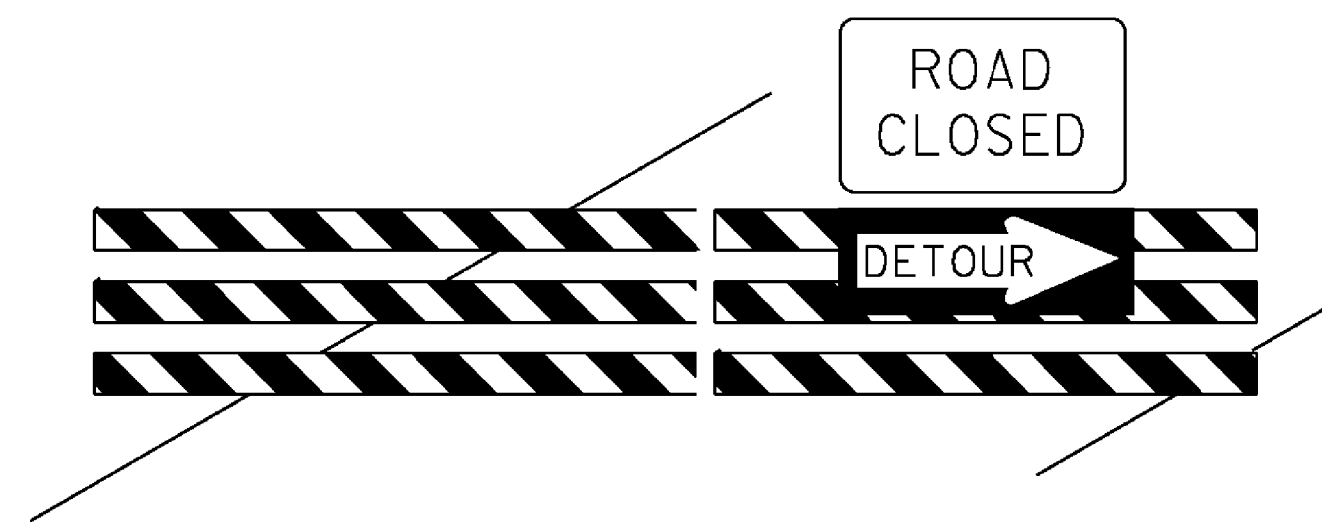
STANDARD BARRICADES

1. THE MARKING FOR BARRICADE RAILS SHALL BE ORANGE AND WHITE (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS).
2. RAIL STRIPE SHOULD BE 6 INCHES, EXCEPT THAT 4-INCH WIDE STRIPES MAY BE USED IF RAIL LENGTHS ARE LESS THAN 36 INCHES.
3. DO NOT PLACE SANDBAGS OR OTHER DEVICES TO PROVIDE MASS ON THE BOTTOM RAIL THAT WILL BLOCK VIEW OR RAIL FACE.
4. FOR ADDITIONAL INFORMATION OR DETAILS, SEE MUTCD, LATEST EDITION.
5. BARRICADES ARE CLASSIFIED BY FHWA AS CATEGORY II WORK ZONE DEVICES WHICH REQUIRE CRASHWORTHINESS ACCEPTANCE LETTERS. TO DATE, 2-IN. THICK TIMBER RAILS HAVE NOT BEEN SUCCESSFULLY CRASH TESTED. A LIST OF CRASHWORTHY BARRICADES AND OTHER CATEGORY II DEVICES CAN BE FOUND ON FHWA'S WEBSITE:
http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/cat2.cfm

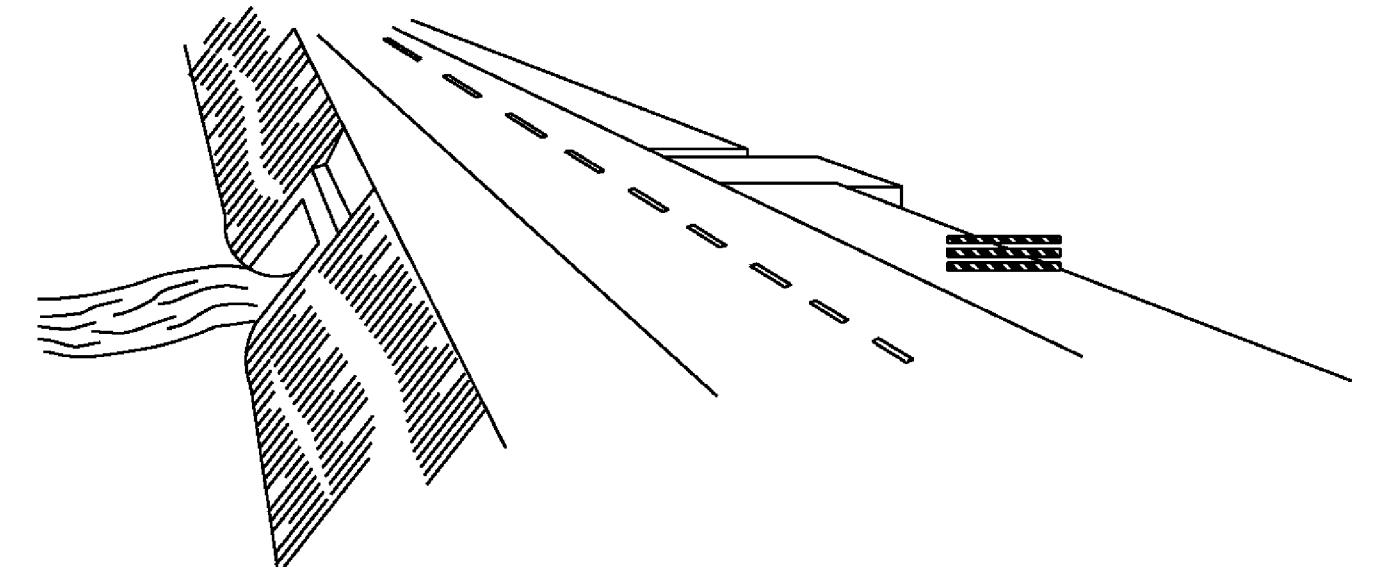
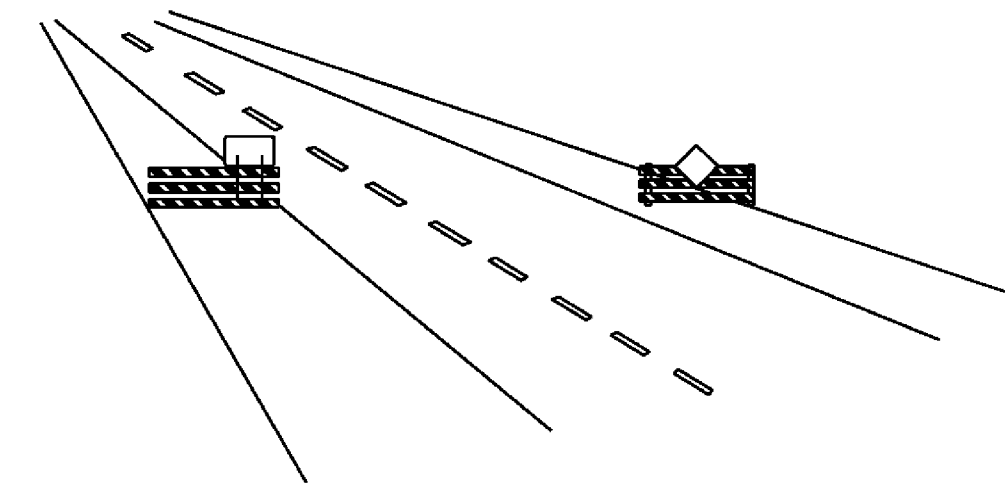


CHEVRON SIGN DETAIL

1. A CHEVRON SIGN CONSISTS OF A BLACK CHEVRON TYPE MARKING ON AN ORANGE BACKGROUND AND SHALL POINT IN THE DIRECTION OF TRAFFIC FLOW.
2. THE CHEVRON SIGN SHALL BE MOUNTED ON CRASHWORTHY SUPPORT.
3. CHEVRON SIGNS MAY BE USED TO SUPPLEMENT OTHER STANDARD DEVICES WHERE ONE OR MORE LANES ARE CLOSED FOR CONSTRUCTION OR MAINTENANCE. THEY SHOULD BE PLACED APPROXIMATELY 2'-0" BEHIND THE LANE TRANSITION STRIPE.



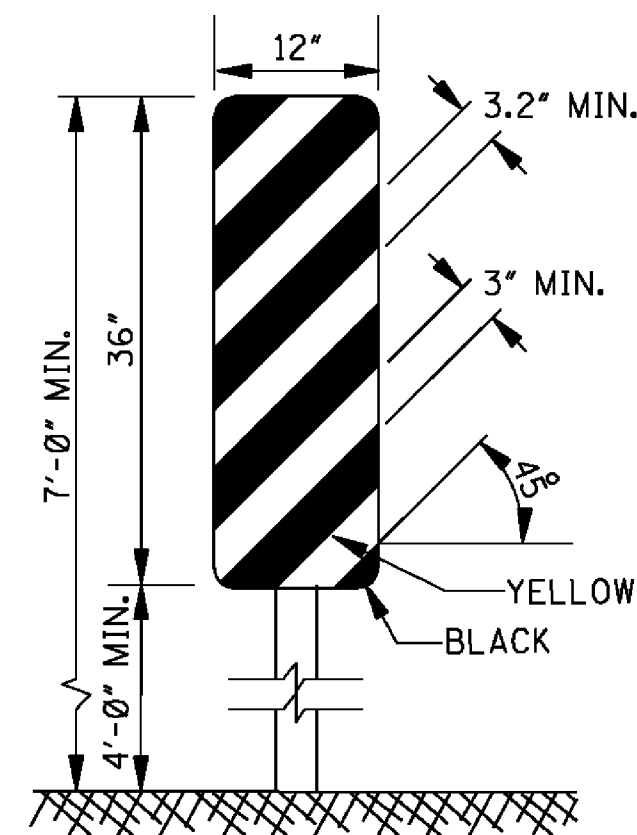
BARRICADE CLOSING A ROAD



BARRICADE CHARACTERISTICS

	I	II	III
WIDTH OF RAIL **	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.
LENGTH OF RAIL**	24" MIN.	24" MIN.	48" MIN.
WIDTH OF STRIPE *	6"	6"	6"
HEIGHT	36" MIN.	36" MIN.	60" MIN.
NUMBER OF RETROREFLECTORIZED RAIL FACES	2 (ONE EACH DIRECTION)	4 (TWO EACH DIRECTION)	3 IF FACING TRAFFIC IN ONE DIRECTION 6 IF FACING TRAFFIC IN TWO DIRECTIONS

- * 1. FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.
- ** 2. BARRICADES INTENDED FOR USE ON EXPRESSWAYS, FREEWAYS AND OTHER HIGH SPEED ROADWAYS, SHALL HAVE A MINIMUM OF 270 in² OF REFLECTIVE AREA FACING TRAFFIC.

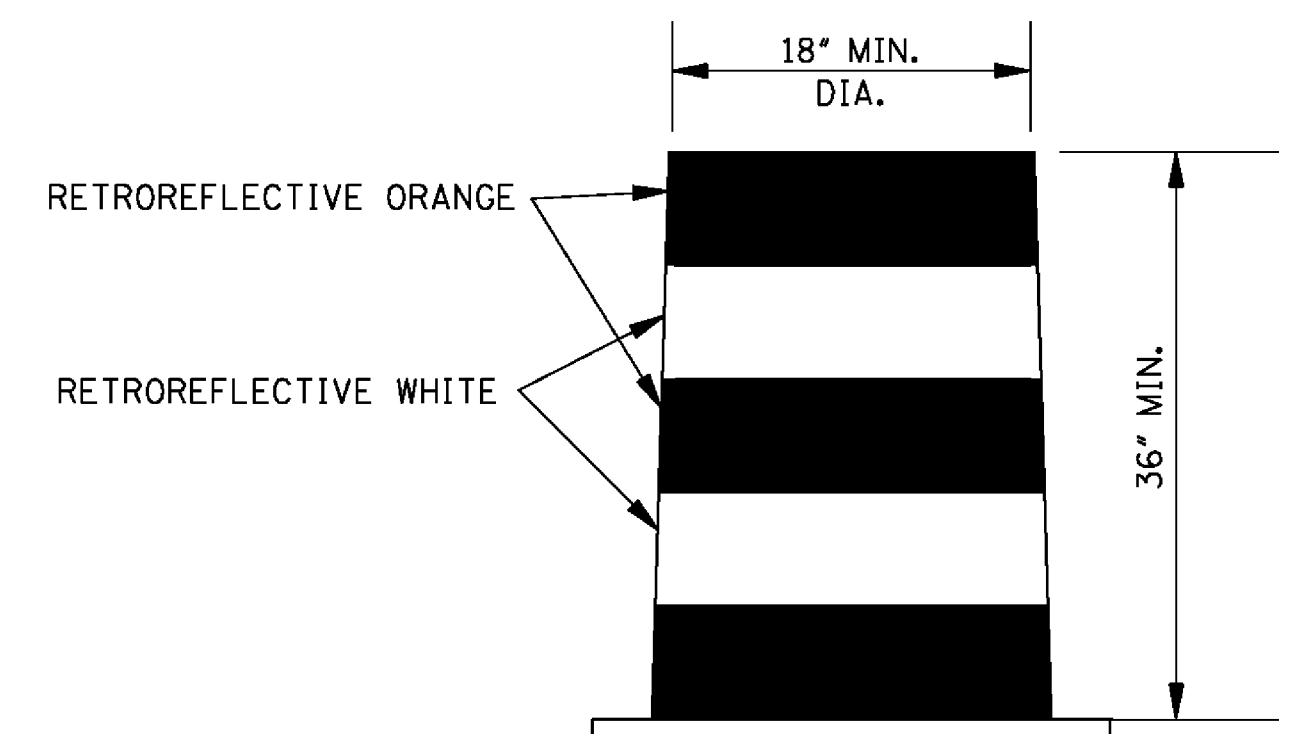


TYPE 3 OBJECT MARKER
(OM-3R)

1. TYPE 3 OBJECT MARKERS SHALL BE USED AT ALL EXPOSED BRIDGE ABUTMENTS AND AT OTHER LOCATIONS AS DEEMED NECESSARY BY THE ENGINEER.
2. THE OM-3R IS SHOWN. THE OM-3L IS SIMILAR EXCEPT THE STRIPES SLOPE DOWNWARD FROM THE UPPER LEFT SIDE TO THE LOWER RIGHT SIDE AND SHALL BE PLACED ON THE LEFT SIDE OF THE OBJECT.
3. THE INSIDE EDGE OF THE MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION.

WING BARRICADES

1. WING BARRICADES ARE TYPE III BARRICADES ERECTED ON THE SHOULDER ON ONE OR BOTH SIDES OF THE PAVEMENT TO GIVE THE SENSATION OF A NARROWING OR RESTRICTED ROADWAY. WING BARRICADES MAY BE USED AS A MOUNTING FOR THE ADVANCE WARNING SIGNS OR FLASHERS.
2. WING BARRICADES SHOULD BE USED:
 - A. IN ADVANCE OF A CONSTRUCTION PROJECT EVEN WHEN NO PART OF THE ROADWAY IS ACTUALLY CLOSED.
 - B. IN ADVANCE OF ALL BRIDGE OR CULVERT WIDENING OPERATIONS.

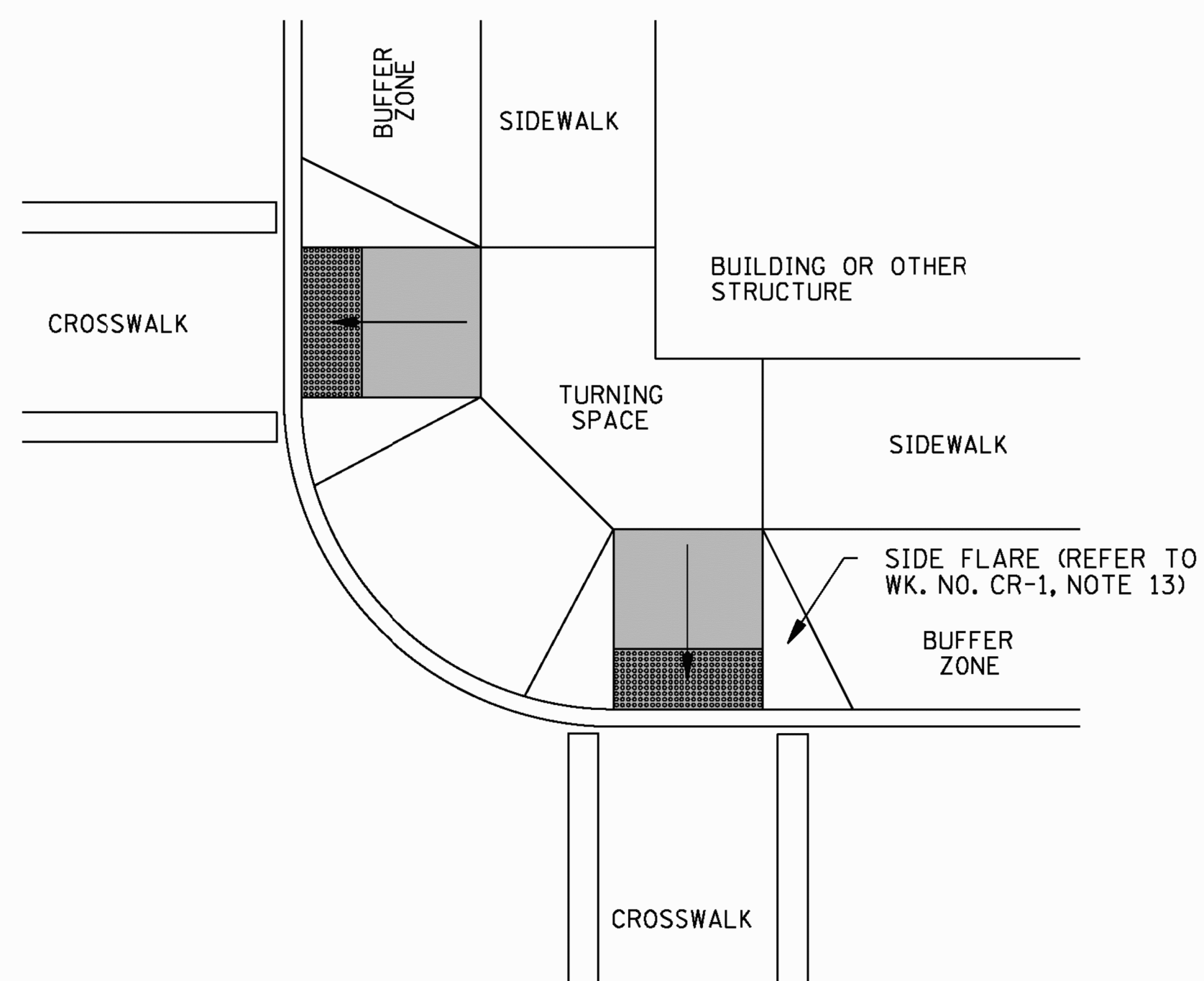


PLASTIC DRUM STRIPING DETAIL

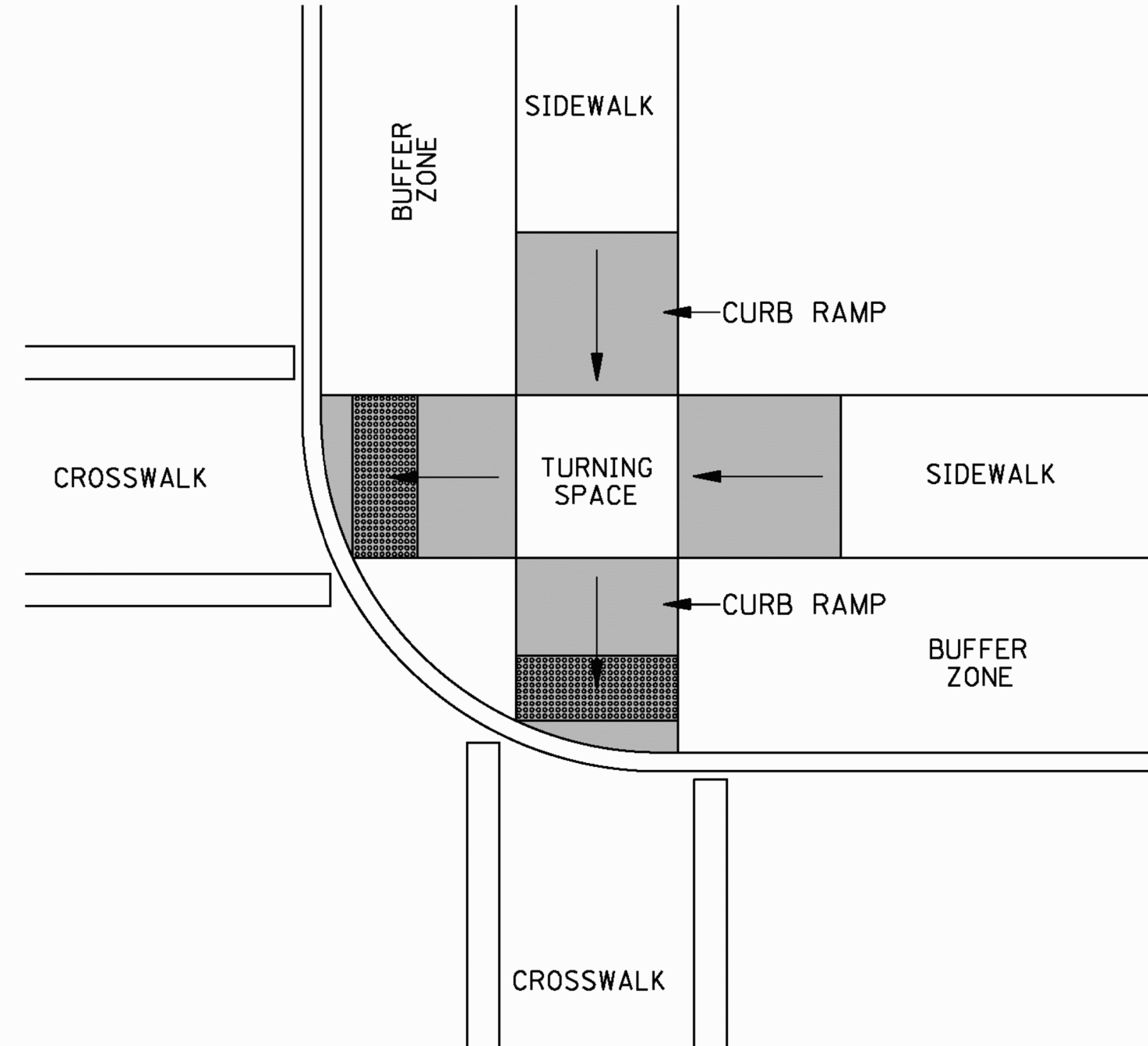
1. PLASTIC DRUMS SHALL BE ON END AND USED AS AN EXPEDIENT METHOD FOR TRAFFIC CHANNELIZATION. THE COLOR AND MARKING OF DRUMS SHALL BE CONSISTENT WITH MARKING STANDARDS FOR BARRICADE. THE PREDOMINANT COLOR ON DRUMS SHALL BE ORANGE WITH FOUR (4) RETROREFLECTIVE, HORIZONTAL, CIRCUMFERENTIAL STRIPES (2 ORANGE & 2 WHITE) 6" WIDE.
2. DRUMS SHOULD NEVER BE PLACED IN THE ROADWAY WITHOUT WARNING SIGNS.
3. WHERE PRACTICAL PLASTIC DRUMS SHOULD BE PLACED NO CLOSER THAN 3'-0" FROM THE EDGE OF TRAVELED LANE.

				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN HIGHWAY SIGN AND BARRICADE DETAILS FOR CONSTRUCTION PROJECTS	 WORKING NUMBER TCP-8
				REVISION		
				DATE		
				DATE	ISSUE DATE: AUGUST 01, 2017	SHEET NUMBER 6358

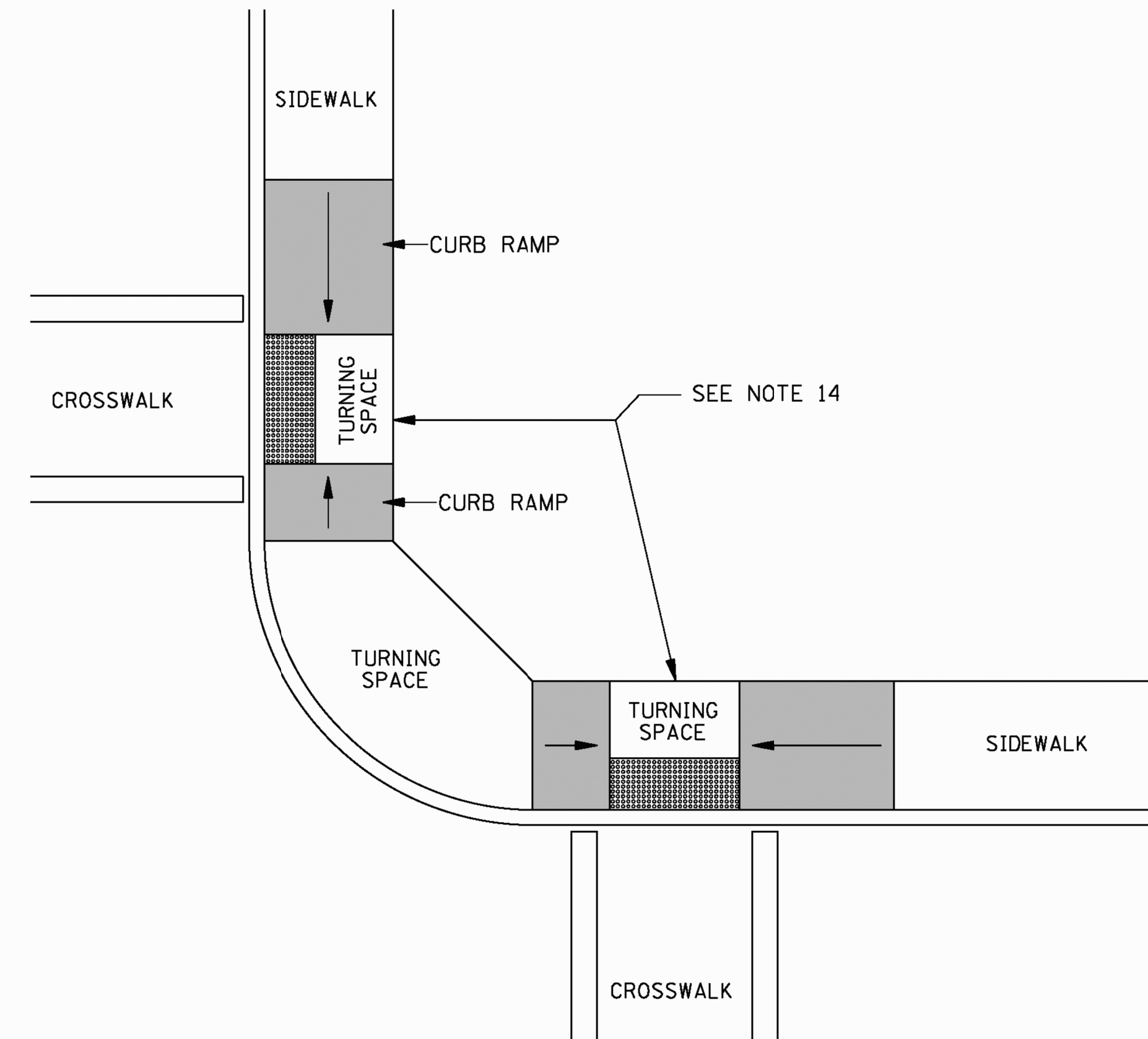
STATE	PROJECT NO.
MISS.	



CURB RAMP CONFIGURATION: TYPE A



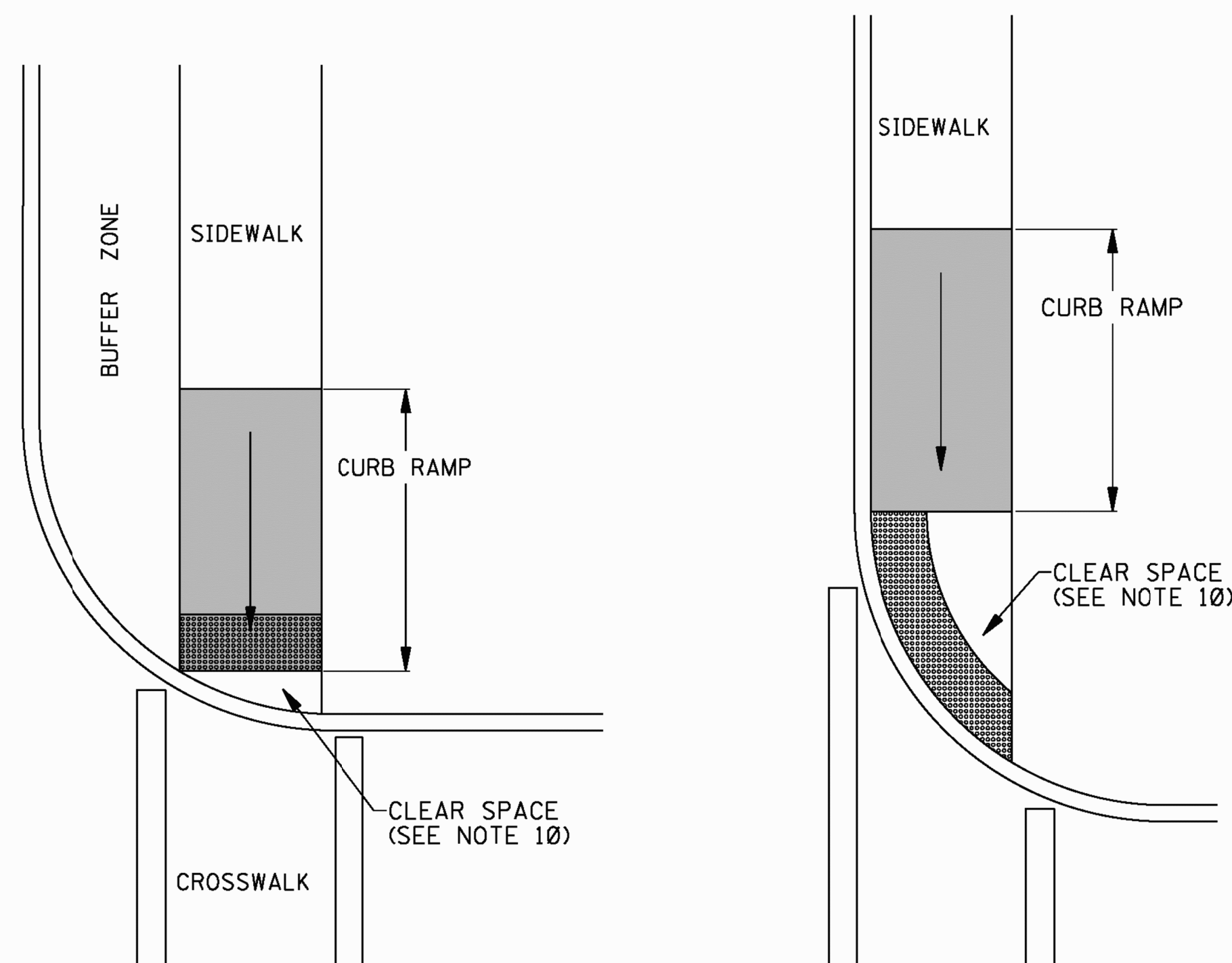
CURB RAMP CONFIGURATION: TYPE B



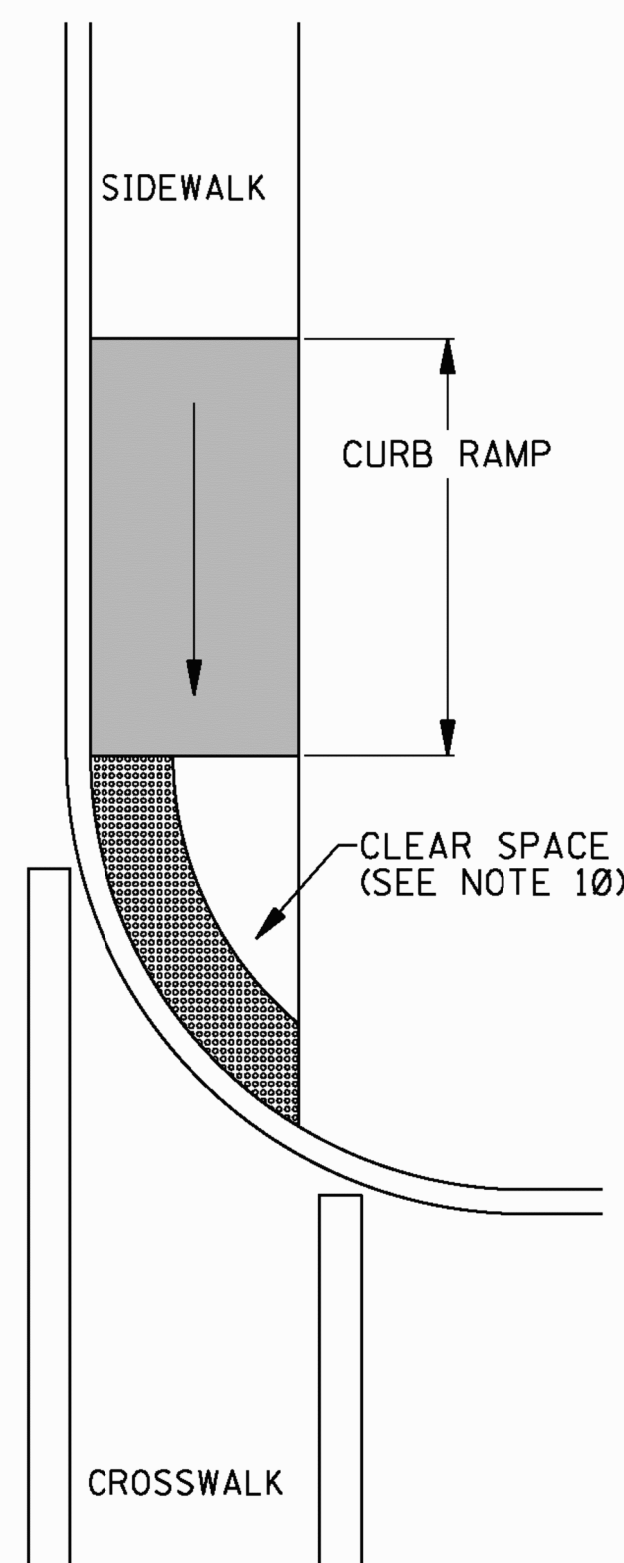
CURB RAMP CONFIGURATION: TYPE C

- GENERAL NOTES:
1. FOR DIMENSIONS & GEOMETRIC VALUES REFER TO WK. NO. CR-1.
 2. THE CONFIGURATIONS SHOWN GENERICALLY REPRESENT THE MOST COMMON SITUATIONS ENCOUNTERED. THEY ARE INTENDED TO PRESENT CURB RAMP DESIGN CONCEPTS. SITE CONDITIONS AT INDIVIDUAL LOCATIONS REQUIRE SPECIFIC DESIGNS. CURB RAMP DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF WK. NOS. CR-1, CR-2, CR-3 AND CR-4.
 3. COORDINATE TRAFFIC CONTROL DEVICES, UTILITY LOCATIONS, SIGNS, STREET FURNITURE AND DRAINAGE TO ENSURE A CONTINUOUS PEDESTRIAN ACCESS ROUTE AT ALL CURB RAMP LOCATIONS. GUIDANCE FOR CROSSWALK MARKINGS AND TRAFFIC CONTROL DEVICES IS PROVIDED IN THE MUTCD.
 4. DETECTABLE WARNINGS SHOWN ON THIS SHEET ARE FOR ILLUSTRATION ONLY. FOR SPECIFIC PLACEMENT ORIENTATIONS AND DIMENSIONS REFER TO WK. NO. CR-4.
 5. THE CROSS SLOPE OF CURB RAMPS, BLENDED TRANSITIONS, AND TURNING SPACES SHALL BE 2% MAXIMUM (1.5% PREFERRED). AT PEDESTRIAN STREET CROSSINGS WITHOUT YIELD OR STOP CONTROL AND AT MIDBLOCK PEDESTRIAN STREET CROSSINGS, THE CROSS SLOPE SHALL BE PERMITTED TO EQUAL THE STREET OR HIGHWAY GRADE.
 6. DIAGONAL CURB RAMPS ARE UNACCEPTABLE IN NEW CONSTRUCTION. THEY MAY BE USED FOR ALTERATIONS ONLY IF IT IS THE ONLY OPTION THAT WILL WORK.
 7. GRATES SHALL NOT BE LOCATED ON CURB RAMPS, BLENDED TRANSITIONS, TURNING SPACES, OR LANDINGS. ACCESS COVERS OF SIMILAR SURFACES SHALL COMPLY WITH APPLICABLE SURFACE REQUIREMENTS.
 8. UTILITIES, SIGNS, AND OTHER FIXED OBJECTS SHALL NOT BE PLACED ON A CURB RAMP, PEDESTRIAN ACCESS ROUTE, OR IN A MANNER THAT INTERFERES WITH THE USE OF THE CURB RAMP.
 9. THE SURFACE OF ALL CURB RAMPS SHALL BE STABLE, FIRM, AND SLIP RESISTANT. A COARSE BROOM FINISH RUNNING PERPENDICULAR TO THE SLOPE IS RECOMMENDED ON CONCRETE RAMP SURFACES, EXCLUSIVE OF THE DETECTABLE WARNING FIELDS.
 10. THERE SHALL BE A CLEAR SPACE AT THE BOTTOM OF THE ALTERNATE PERPENDICULAR TURNED CURB RAMP. IT SHALL SLOPE TO DRAIN RUNOFF TO STREET/GUTTER AND HAVE A MAXIMUM SLOPE OF 2% (1.5% PREFERRED).
 11. TURNING SPACES MAY OVERLAP WITH ADJACENT TURNING SPACES OR A SINGLE TURNING SPACE MAY SERVE MULTIPLE CURB RAMPS.
 12. TURNING SPACES MAY OVERLAP WITH THE CLEAR GROUND SPACE REQUIRED AT PEDESTRIAN SIGNAL PUSH BUTTONS.
 13. THE CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTES WITHIN MEDIANS AND PEDESTRIAN REFUGE ISLANDS SHALL BE 5' MINIMUM.
 14. BEYOND THE BOTTOM GRADE BREAK, A TURNING SPACE OF 4' MINIMUM BY 4' MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE.

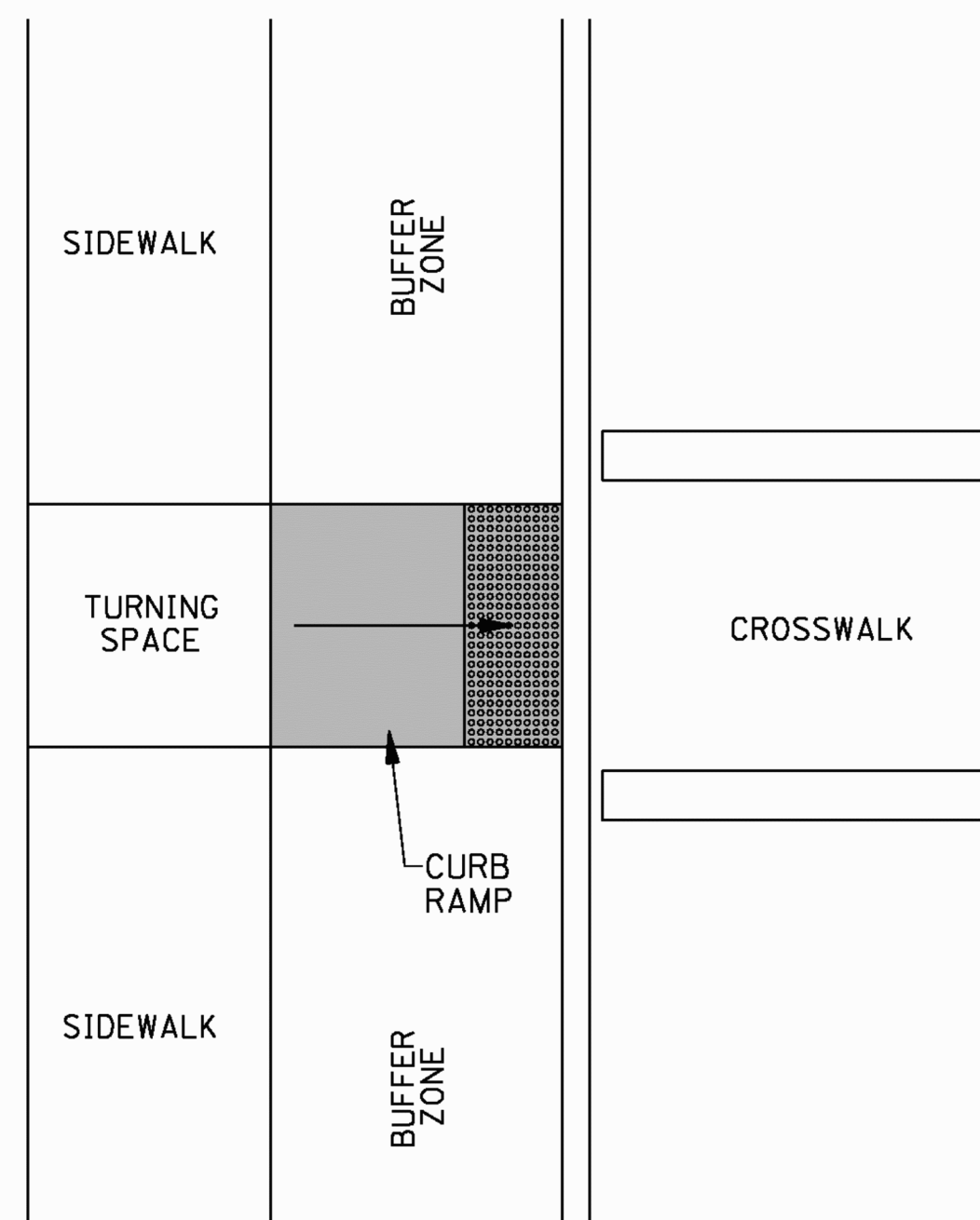
NOTE: SEE WK. NO. CR-4 FOR
DETECTABLE WARNING DIMENSIONS
AND PLACEMENT ORIENTATION.



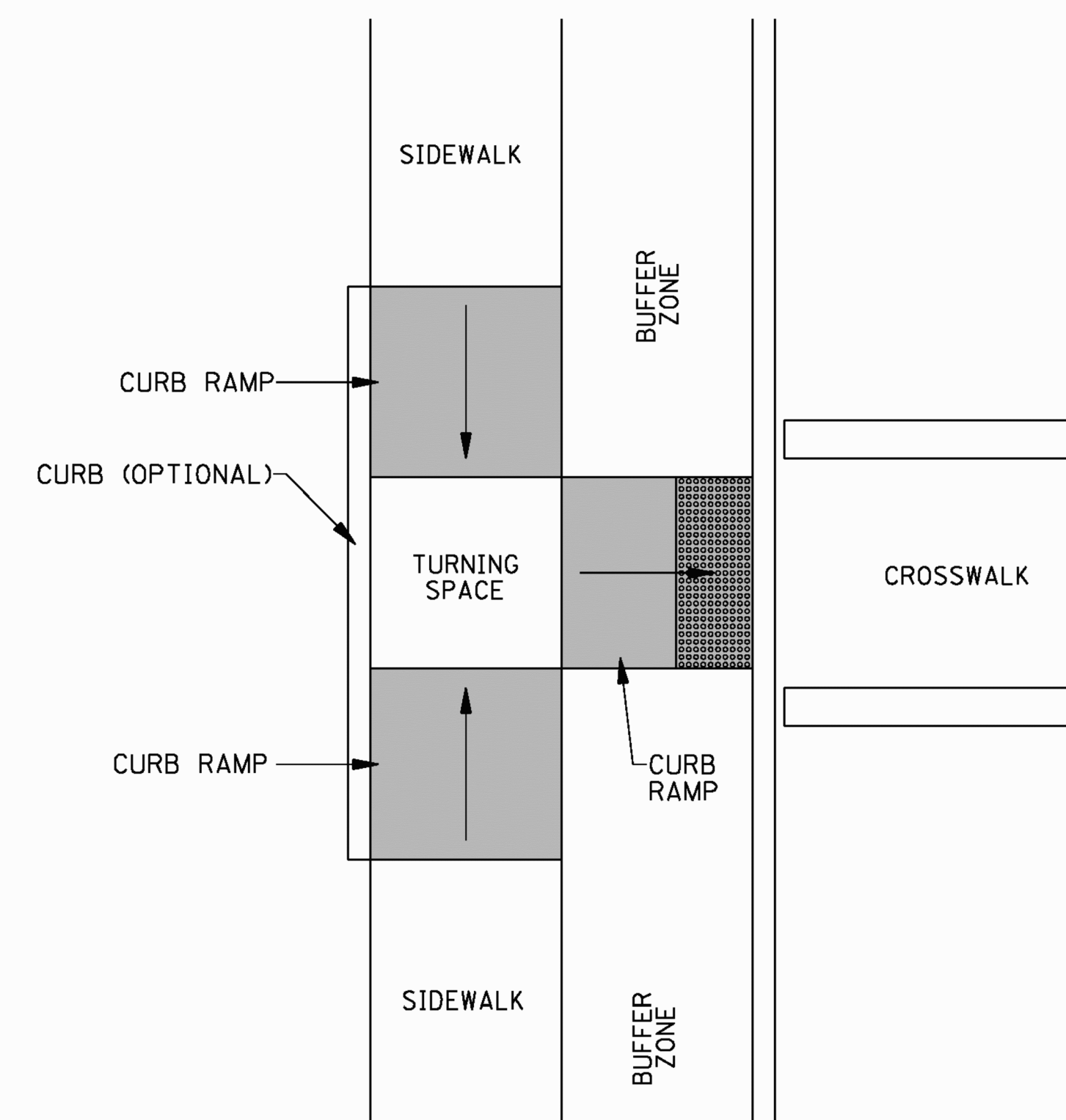
CURB RAMP CONFIGURATION: TYPE D



CURB RAMP CONFIGURATION: TYPE E



CURB RAMP CONFIGURATION: TYPE F



**CURB RAMP CONFIGURATION: TYPE G
MID BLOCK CROSSING**

THE CURB BEHIND THE TURNING SPACE AND RAMPS IS NOT REQUIRED, BUT IS SUGGESTED FOR RETAINING SOIL AND PROVIDING AN EDGE FOR PEDESTRIANS WITH VISUAL IMPAIRMENTS.

				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN
				REVISION	
					<i>CURB RAMPS PLACEMENT DETAILS</i>
				DATE	 MISSISSIPPI DEPARTMENT OF TRANSPORTATION WORKING NUMBER CR-2 ISSUE DATE: <u> AUGUST 01, 2017 </u> SHEET NUMBER 6422

GENERAL NOTES:

1. THE DETAILS PROVIDED ARE NOT DRAWN TO SCALE. THE QUANTITY OF DOMES DEPICTED ON THE DETECTABLE WARNING UNIT (THE DOMES AND THE ENTIRE 2' LEVEL SURFACE) IS FOR ILLUSTRATION ONLY.
2. ALL DETECTABLE WARNINGS SHOWN ON THIS SHEET SHALL BE PAID FOR - PER SQUARE FEET, UNLESS OTHERWISE NOTED IN THE PLANS.

DETECTABLE WARNING UNIT DIMENSIONS:

3. DETECTABLE WARNING SURFACES SHALL EXTEND 2' MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL. AT CURB RAMPS AND BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN (EXCLUDING ANY FLARED SIDES), BLENDED TRANSITION, OR TURNING SPACE. AT PEDESTRIAN AT-GRADE RAIL CROSSINGS NOT LOCATED WITHIN A STREET OR HIGHWAY, DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE CROSSING. AT BOARDING PLATFORMS FOR BUSES AND RAIL VEHICLES, DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL LENGTH OF THE PUBLIC USE AREAS OF THE PLATFORM. AT BOARDING AND ALIGHTING AREAS AT SIDEWALK OR STREET LEVEL TRANSIT STOPS FOR RAIL VEHICLES, DETECTABLE WARNING SURFACES SHALL EXTEND THE FULL LENGTH OF THE TRANSIT STOP.

DOME ALIGNMENT:

4. THE ROWS OF DOMES SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK AT THE RAMP LANDING OR BETWEEN THE CURB RAMP AND THE STREET.
5. WHERE DOMES ARE ARRAYED RADially THEY MAY DIFFER IN DOME DIAMETER AND CENTER-TO-CENTER SPACING WITHIN THE RANGES SPECIFIED ON THIS SHEET.

COLOR REQUIREMENTS:

6. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT GUTTER, STREET OR HIGHWAY, OR PEDESTRIAN ACCESS ROUTE SURFACE, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

DETECTABLE WARNINGS LOCATIONS:

7. ON PERPENDICULAR CURB RAMPS, WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE IN FRONT OF THE BACK OF CURB, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE BACK OF CURB, WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5' OR LESS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK, WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS MORE THAN 5', DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE LOWER LANDING AT THE BACK OF CURB.
8. ON PARALLEL CURB RAMPS, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE TURNING SPACE AT THE FLUSH TRANSITION BETWEEN THE STREET AND SIDEWALK.
9. ON BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE BACK OF CURB, WHERE RAISED PEDESTRIAN STREET CROSSINGS, DEPRESSED CORNERS, OR OTHER LEVEL PEDESTRIAN STREET CROSSINGS ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE FLUSH TRANSITION BETWEEN THE STREET AND THE SIDEWALK.
10. AT CUT-THROUGH PEDESTRIAN REFUGE ISLANDS, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE EDGES OF THE PEDESTRIAN ISLAND AND SHALL BE SEPARATED BY A 2' MINIMUM LENGTH OF SURFACE WITHOUT DETECTABLE WARNINGS.
11. AT PEDESTRIAN AT-GRADE RAIL CROSSINGS NOT LOCATED WITHIN A STREET OR HIGHWAY, DETECTABLE WARNING SURFACES SHALL BE PLACED ON EACH SIDE OF THE RAIL CROSSING. THE EDGE OF THE DETECTABLE WARNING SURFACE NEAREST THE RAIL CROSSING SHALL BE 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. WHERE PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL.
12. AT BOARDING PLATFORMS FOR BUSES AND RAIL VEHICLES, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE BOARDING EDGE OF THE PLATFORM.
13. AT BOARDING AND ALIGHTING AREAS AT SIDEWALK OR STREET LEVEL TRANSIT STOPS FOR RAIL VEHICLES, DETECTABLE WARNING SURFACES SHALL BE PLACED AT THE SIDE OF THE BOARDING AND ALIGHTING AREA FACING THE RAIL VEHICLES.



NOTE: IF THE DISTANCE FROM THE GRADE BREAK IS
GREATER THAN OR EQUAL TO 5', DETECTABLE WARNINGS
SHALL BE PLACED ALONG THE RADIUS OF THE CURVE AS
SHOWN IN THE ABOVE DETAIL.



NOTE: IF THE DISTANCE FROM THE GRADE BREAK IS LESS THAN OR EQUAL TO 5', DETECTABLE WARNINGS SHALL BE PLACED ON THE CURB RAMP ALONG THE BOTTOM GRADE BREAK WITH ONE CORNER 5" TO 9" FROM THE FRONT OF THE CURB OR EDGE OF THE ROADWAY.



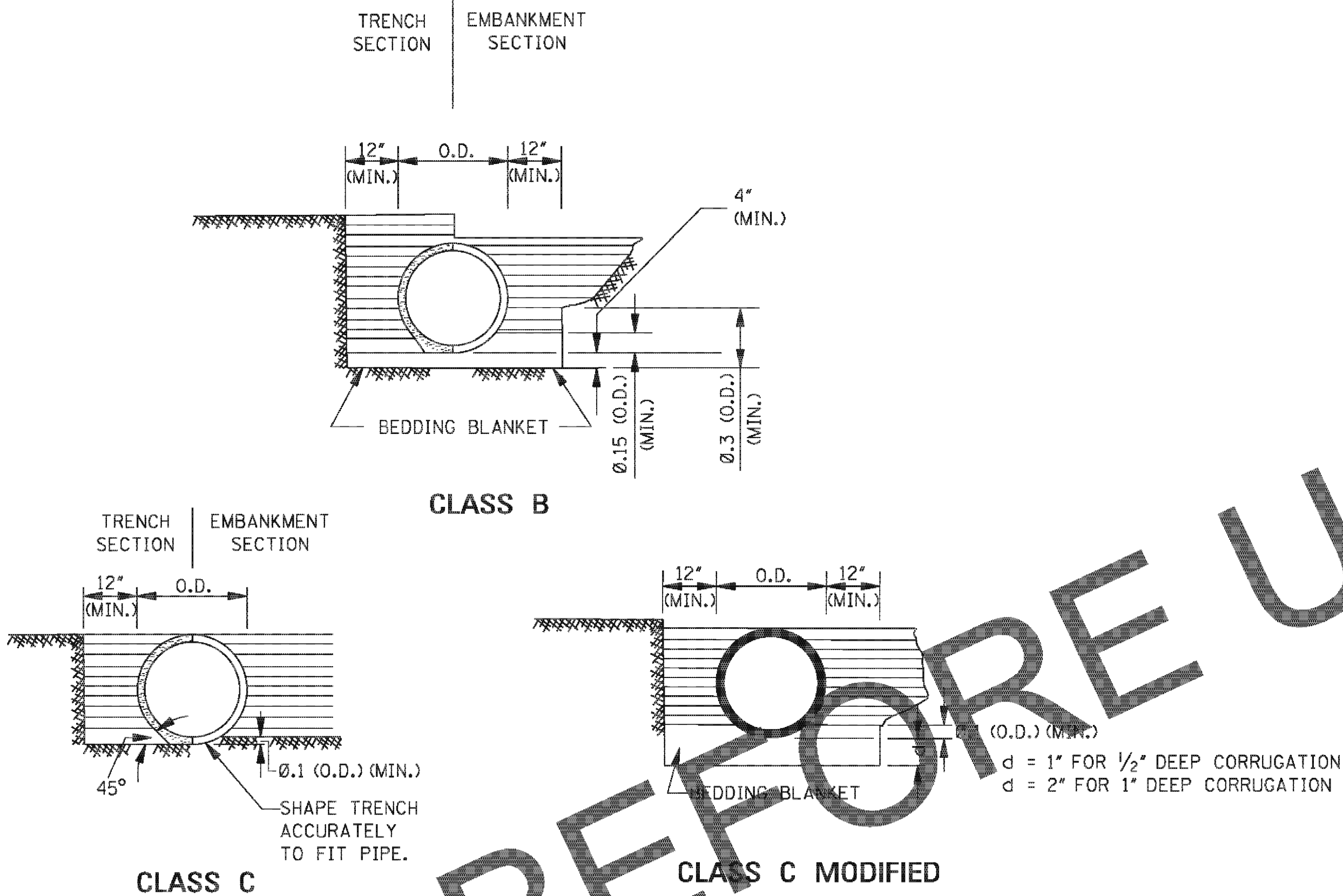
NON-ELEVATED CROSSING



					BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN
					REVISION	CURB RAMPS DETECTABLE WARNING DETAILS  WORKING NUMBER CR-4 SHEET NUMBER 6424
					DATE	
					ISSUE DATE:	AUGUST 01, 2017

CORRUGATED STEEL AND ALUMINUM PIPE (ROUND)						
PIPE DIAMETER (in)	MINIMUM COVER FROM TOP OF PIPE TO TOP OF SUBGRADE (in)	MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (ft)				
		SHEET THICKNESS (in)				
		0.064 STEEL 0.060 ALUM. 16 GAGE	0.079 STEEL 0.075 ALUM. 14 GAGE	0.109 STEEL 0.105 ALUM. 12 GAGE	0.138 STEEL 0.135 ALUM. 10 GAGE	0.168 STEEL 0.164 ALUM. 8 GAGE
		2 3/8" X 1/2" CORRUGATED STEEL HELICAL	3" X 1" OR 5" X 1" CORRUGATED STEEL HELICAL	2 3/8" X 1/2" CORRUGATED ALUMINUM HELICAL		
12"	12"	207' / - / 125'	259' / - / 157'	- / - / -	- / - / -	- / - / -
15"	12"	165' / - / 100'	207' / - / 125'	- / - / -	- / - / -	- / - / -
18"	12"	138' / - / 83'	172' / - / 104'	242' / - / -	- / - / -	- / - / -
24"	12"	103' / - / 62'	129' / - / 78'	181' / - / 109'	- / - / -	- / - / -
30"	12"	82' / - / -	103' / - / 69'	145' / - / 97'	- / - / -	- / - / -
36"	12"	68' / - / -	86' / - / 62'	120' / - / 87'	155' / - / 94'	- / - / -
42"	12"	58' / - / -	73' / - / 51'	103' / - / 73'	133' / - / 80'	163' / - / -
48"	12"	51' / - / -	64' / - / -	90' / - / 62'	116' / - / 70'	142' / - / 85'
54"	12"	- / 46' / -	57' / 58' / -	80' / 82' / 54'	103' / 106' / 62'	126' / 129' / 76'
60"	12"	- / 42' / -	- / 52' / -	72' / 74' / 48'	93' / 95' / 52'	114' / 116' / 64'
66"	12"	- / 38' / -	- / 47' / -	- / 66' / -	84' / 86' / -	103' / 106' / 52'
72"	12"	- / 35' / -	- / 43' / -	- / 61' / -	77' / 79' / -	94' / 97' / 43'
78"	12"	- / 32' / -	- / 40' / -	- / 56' / -	- / 73' / -	84' / 89' / -
84"	12"	- / 29' / -	- / 37' / -	- / 52' / -	- / 68' / -	72' / 83' / -
90"	12"	- / 27' / -	- / 34' / -	- / 49' / -	- / 63' / -	- / 77' / -
96"	12"	- / - / -	- / 32' / -	- / 46' / -	- / 59' / -	- / 72' / -
102"	24"	- / - / -	- / 30' / -	- / 43' / -	- / 55' / -	- / 68' / -
108"	24"	- / - / -	- / - / -	- / 40' / -	- / 52' / -	- / 64' / -
114"	24"	- / - / -	- / - / -	- / 38' / -	- / 50' / -	- / 61' / -
120"	24"	- / - / -	- / - / -	- / 36' / -	- / 47' / -	- / 58' / -

NOTE: THE AVERAGE INSIDE DIAMETER SHALL NOT VARY MORE THAN ONE (1) PERCENT OR 1/2", WHICHEVER IS GREATER, FROM THE NOMINAL DIAMETER WHEN MEASURED ON THE INSIDE CREST OF THE CORRUGATIONS (AASHTO M 36M/M 36 & AASHTO M 196M/M 196).



MAXIMUM HEIGHT OF FILL OVER REINFORCED CONCRETE PIPE		
CLASS OF PIPE	MAXIMUM COVER (ft)	
	CLASS "C" BEDDING	CLASS "B" BEDDING
III	12'	19'
IV	18'	30'
V	28'	48'
SPECIAL DESIGN	>28'	>48'

NOTE: CLASSES OF PIPE AND BEDDING TO BE CONSISTENT THROUGHOUT THE PIPE LENGTH.

CORRUGATED METAL PIPE ARCHES					
EQUIV. DIAMETER (in)	PIPE DIMENSION (SPAN X RISE) (in)	MINIMUM COVER	STEEL		ALUMINUM
			MINIMUM THICKNESS REQUIRED (in)	MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (ft) FOR THE FOLLOWING CORNER BEARING PRESSURE (tons/ft²)	MINIMUM THICKNESS REQUIRED (in)
				† 4 tons/ft²	
				2 3/8" X 1/2" CORRUGATION HELICAL	2 3/8" X 1/2" CORRUGATION RIVETED OR HELICAL
15"	17" X 13"	12"	0.064"	13'	0.064"
18"	21" X 15"	12"	0.064"	12'	0.064"
24"	28" X 20"	12"	0.064"	12'	0.075"
30"	35" X 24"	12"	0.064"	12'	0.075"
36"	42" X 29"	12"	0.064"	12'	0.105"
42"	49" X 33"	12"	0.079"	12'	0.105"
48"	57" X 38"	12"	0.109"	12'	0.135"
54"	64" X 43"	12"	0.109"	12'	0.135"
60"	71" X 47"	12"	0.138"	12'	0.164"
66"	77" X 52"	12"	0.168"	12'	
72"	83" X 57"	12"	0.168"	12'	
				3" X 1" CORRUGATION HELICAL	5" X 1" CORRUGATION HELICAL
48"	53" X 41"	12"	0.079"	12'	-
54"	60" X 46"	12"	0.079"	20'	-
60"	66" X 51"	12"	0.079"	20'	-
66"	73" X 55"	12"	0.079"	20'	-
72"	81" X 59"	12"	0.079" / 0.109"	17' / 17'	
78"	87" X 63"	12"	0.079" / 0.109"	16' / 16'	
84"	95" X 67"	12"	0.079" / 0.109"	16' / 16'	
90"	103" X 71"	12"	0.109" / 0.109"	16' / 16'	
96"	112" X 75"	12"	0.109" / 0.109"	16' / 16'	
102"	117" X 79"	12"	0.109" / 0.109"	16' / 16'	
108"	128" X 83"	12"	0.138" / 0.138"	16' / 16'	
114"	137" X 87"	12"	0.138" / 0.138"	16' / 16'	
120"	142" X 91"	12"	0.168" / 0.168"	16' / 16'	

NOTES:
1. THE AVERAGE INSIDE DIAMETER SHALL NOT VARY MORE THAN ONE (1) PERCENT OR 1/2", WHICHEVER IS GREATER, FROM THE NOMINAL DIAMETER WHEN MEASURED ON THE INSIDE CREST OF THE CORRUGATIONS. (AASHTO M 36M/M 36 & AASHTO M 196M/M 196).

† 2. BEARING PRESSURES FOR GIVEN FILL HEIGHT SHALL HAVE FOUNDATION MATERIALS INVESTIGATED TO DETERMINE BEARING CAPACITY.

- GENERAL NOTES:
1. MINIMUM SPACING BETWEEN MULTIPLE LINES OF PARALLEL PIPE SHALL BE THE DISTANCE REQUIRED FOR INSTALLING THE ADJACENT FLARED END SECTIONS OR AS SHOWN ON THE HEADWALL DRAWINGS FOR CONDUITS REQUIRING HEADWALLS.
 2. UNLESS OTHERWISE INDICATED, THE TOP OF THE PIPE SHALL BE BELOW THE TOP OF THE SUBGRADE, AND A MINIMUM OF 12" OF COVER OVER THE TOP OF THE PIPE SHALL BE MAINTAINED BETWEEN THE SHOULDER LINES.
 3. WHERE PRE-BED PIPE IS INSTALLED, FLARED END SECTIONS FROM OTHER MANUFACTURERS MAY BE JOINED TO PRE-BED PIPE PROVIDED A CONCRETE COLLAR IS PLACED AT THE CONTRACTOR'S EXPENSE AND A DEFORMATION TO THE PIPE'S FLOWLINE IS NOT EVIDENT ON FINAL PLACEMENT.
 4. THE BACKFILL SHALL BE EITHER CLASS "B", CLASS "C", OR CLASS "C" MODIFIED. A MINIMUM COMPACTION LEVEL OF 95% STANDARD PROCTOR DENSITY PER AASHTO T99 SHALL BE ACHIEVED BY USE OF VIBRATORY PLATE, HYDROHAMMER TYPE COMPACTIONERS SHALL NOT BE USED OVER THE PIPE. ALL COMPACTION EQUIPMENT USED SHALL BE APPROVED BY THE ENGINEER.

				BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN
				REVISION	
				DATE	ISSUE DATE: AUGUST 01, 2017

**PIPE CULVERT
INSTALLATION**

WORKING NUMBER
PI-1
SHEET NUMBER
6501

STANDARD INSTALLATION DETAIL

TABLE 1: BEDDING AND BACKFILL REQUIREMENTS

BEDDING AND BACKFILL REQUIREMENTS FOR NON-RIGID PIPE IN CROSS DRAIN AND STORM DRAIN APPLICATIONS	
A.	BEDDING SHALL BE CLASS B IN ACCORDANCE WITH THE MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
B.	BACKFILL MATERIAL SHALL BE ONE OF THE FOLLOWING: 1. FLOWABLE FILL IN ACCORDANCE WITH THE MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION LATEST EDITION. 2. CRUSHED STONE AGGREGATE BACKFILL IN ACCORDANCE WITH THE MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
IF FLOWABLE FILL IS UTILIZED, CARE SHALL BE TAKEN TO PREVENT "FLOATING" OF THE PIPE. THE COST OF FURNISHING AND PLACING THE REQUIRED BEDDING AND BACKFILL MATERIAL INDICATED IN A AND B SHALL BE INCLUDED IN THE UNIT COST OF THE NON-RIGID PIPE ALTERNATE, I.E., THERE IS NO SEPARATE PAY ITEM FOR NON-RIGID PIPE BEDDING AND BACKFILL MATERIAL.	
BEDDING AND BACKFILL REQUIREMENTS FOR NON-RIGID PIPE IN SIDE DRAIN APPLICATIONS	
A.	BEDDING SHALL BE CLASS C IN ACCORDANCE WITH THE MISSISSIPPI SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
B.	BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE MISSISSIPPI SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. PIPES THAT SERVE AS A SIDE DRAIN ON DEPARTMENT RIGHT OF WAY, BUT CARRY DRAINAGE UNDER A COUNTY OR LOCAL ROAD SHALL ADHERE TO THE BEDDING AND BACKFILL REQUIREMENTS FOR A CROSS DRAIN CONTAINED ABOVE.
THE COST OF FURNISHING AND PLACING THE REQUIRED BEDDING AND BACKFILL MATERIAL INDICATED IN A AND B SHALL BE INCLUDED IN THE UNIT COST OF THE NON-RIGID ALTERNATE PIPE, I.E., THERE IS NO SEPARATE PAY ITEM FOR NON-RIGID BEDDING AND BACKFILL MATERIAL.	

TABLE 2:
HIGH DENSITY CORRUGATED POLYETHYLENE PIPE
HEIGHT OF COVER

NOMINAL DIAMETER IN.	MINIMUM COVER IN.	MAXIMUM COVER - FT.	
		CROSS DRAIN	SIDE DRAIN
12	12	38	11
15	12	36	12
18	12	35	11
24	12	30	10
30	12	25	9
36	21	29	10
42	21	27	9
48	21	25	8

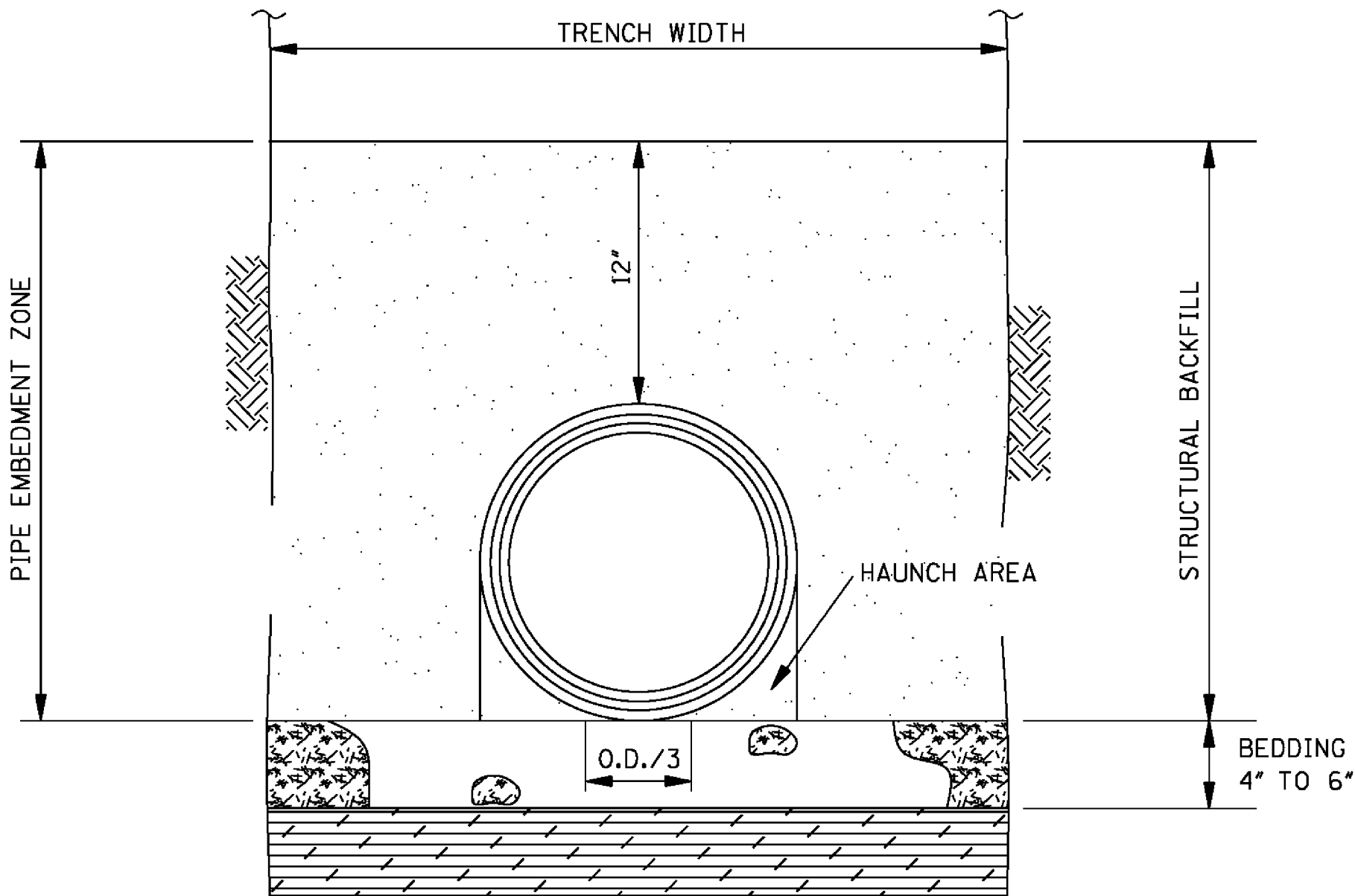
TABLE 3: RECOMMENDED TRENCH WIDTH

DIAMETER IN.	O.D. IN.	TRENCH WIDTH IN.
12	14.45	34
15	17.57	38
18	21.20	44
24	27.80	54
30	35.10	65
36	41.70	75
42	47.70	84
48	53.60	92

THE TRENCH WIDTH MUST BE WIDE ENOUGH TO
ACCOMODATE COMPACTION EQUIPMENT

TABLE 4: MULTIPLE INSTALLATION OF
POLYETHYLENE PIPES

DIAMETER OF PIPE IN.	CLEAR DISTANCE BETWEEN PIPES FT.-IN.
18	1'-2"
24	1'-5"
30	1'-8"
36	1'-11"
42	2'-2"
48	2'-5"

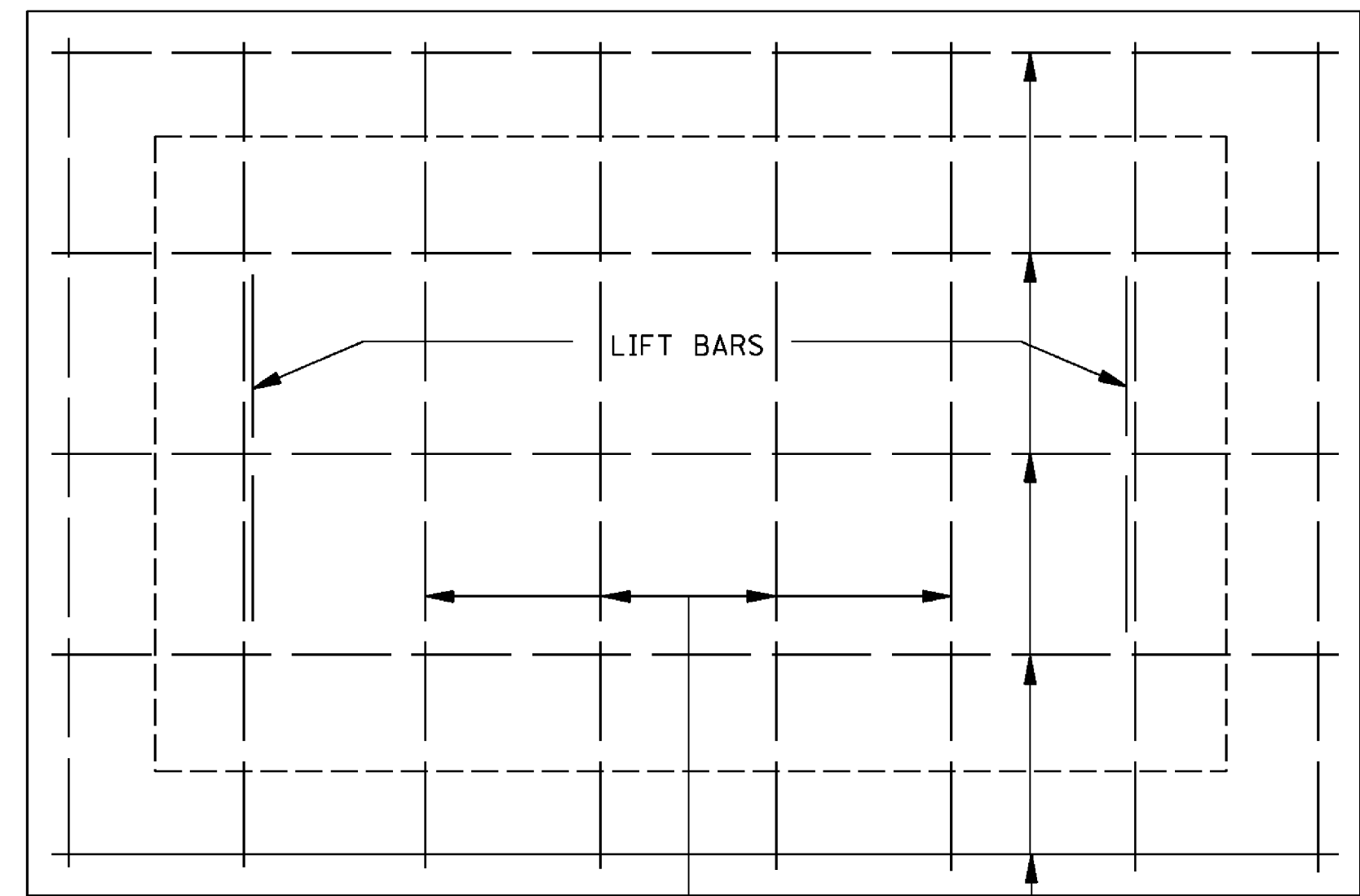


TRENCH CROSS SECTION SHOWING TERMINOLOGY

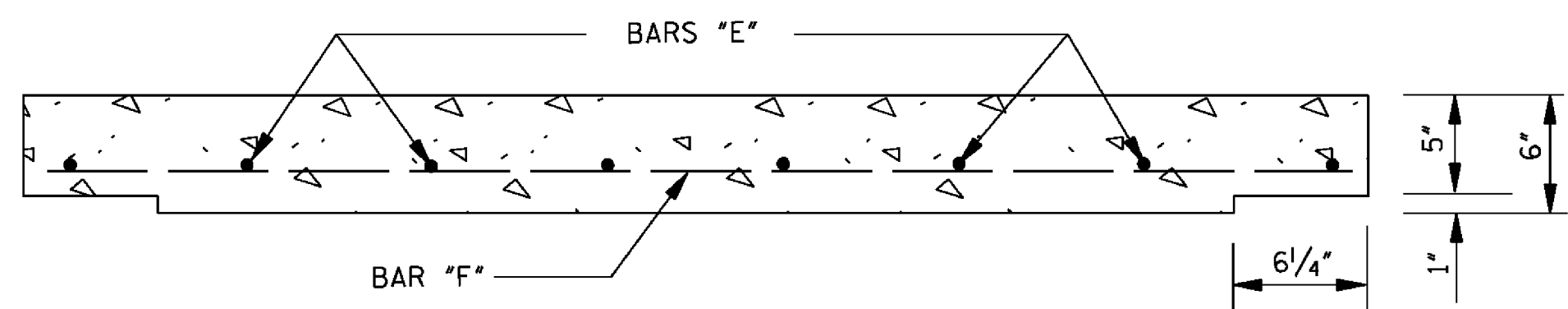
GENERAL NOTES:

- MATERIALS
THERMOPLASTIC PIPE
POLYETHYLENE PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 294, LATEST EDITION.
DESIGNATION OF TYPE: TYPE S: THIS PIPE WILL HAVE A FULL CIRCULAR CROSS SECTION WITH AN OUTER CORRUGATED PIPE WALL AND A SMOOTH INNER LINER.
BEDDING MATERIAL AND STRUCTURAL BACKFILL
BEDDING MATERIAL AND STRUCTURAL BACKFILL SHALL MEET THE REQUIREMENTS OF TABLE 1.
- JOINTS
JOINTS FOR THERMOPLASTIC PIPE SHALL MEET THE PERFORMANCE REQUIREMENTS OF SOILTIGHTNESS UNLESS WATERTIGHTNESS IS SPECIFIED.
SUITABLE JOINTS CAN BE OBTAINED WITH THE FOLLOWING TYPES OF CONNECTIONS:
A) CORRUGATED BANDS (WITH OR WITHOUT GASKETS)
B) BELL AND SPIGOT PIPE ENDS (WITH OF WITHOUT GASKETS)
C) DOUBLE BELL COUPLINGS (WITH OR WITHOUT GASKETS)
- INSTALLATION
MINIMUM TRENCH WIDTHS SHALL MEET THE REQUIREMENTS OF TABLE 3.
THE MIDDLE THIRD OF THE BEDDING MATERIAL UNDER THE PIPE SHOULD BE LOOSELY PLACED, WHILE THE REMAINDER SHALL BE COMPACTED TO A MINIMUM 90% OF MAXIMUM DENSITY PER AASHTO T 99.
A MINIMUM OF 4 INCHES OF BEDDING SHALL BE PROVIDED PRIOR TO PLACEMENT OF THE PIPE.
STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING AN 8" LOOSE LIFT THICKNESS AND BROUGHT UP EVENLY ON BOTH SIDES OF THE PIPE WITH AN ELEVATION NOT LESS THAN 12 INCHES ABOVE THE TOP OF THE PIPE. A MINIMUM COMPACTION LEVEL OF 90% STANDARD DENSITY PER AASHTO T 99 SHALL BE ACHIEVED.
MINIMUM COVER REQUIREMENTS SHALL MEET THE REQUIREMENTS OF TABLE 2.
FOR MULTIPLE INSTALLATIONS OF POLYETHYLENE PIPES, A CLEAR DISTANCE BETWEEN THE PIPES SHALL MEET THE REQUIREMENTS OF TABLE 4.
- CALCULATIONS FOR FILL DEPTHS ARE BASED ON PROPERTIES DEFINED IN AASHTO M294 AND CALCULATIONS IN AASHTO SEC. 19.

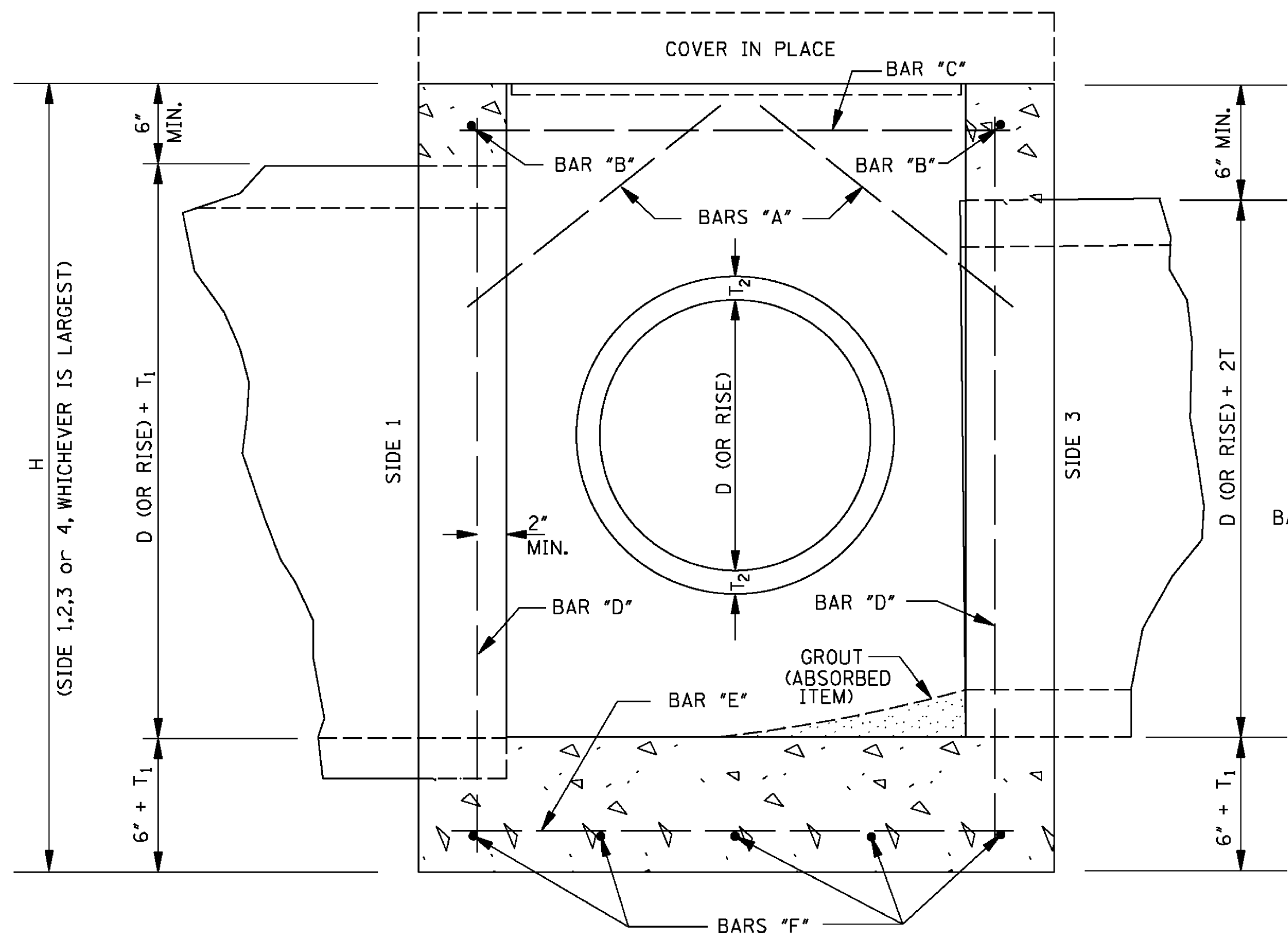
				BY		MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN
				REVISION		
				DATE		
ISSUE DATE: AUGUST 01, 2017						 WORKING NUMBER PI-2 SHEET NUMBER 6502



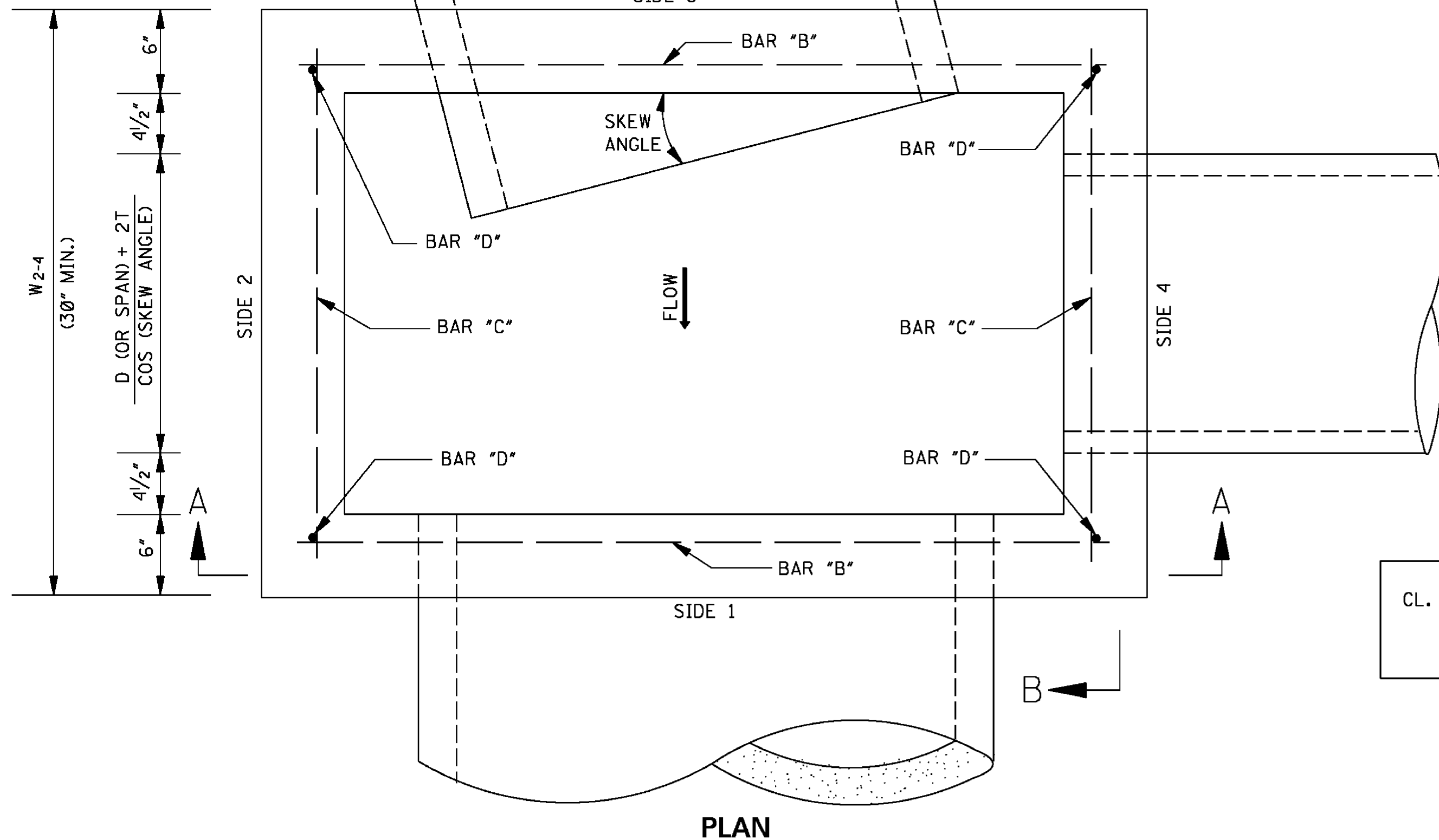
PLAN OF COVER



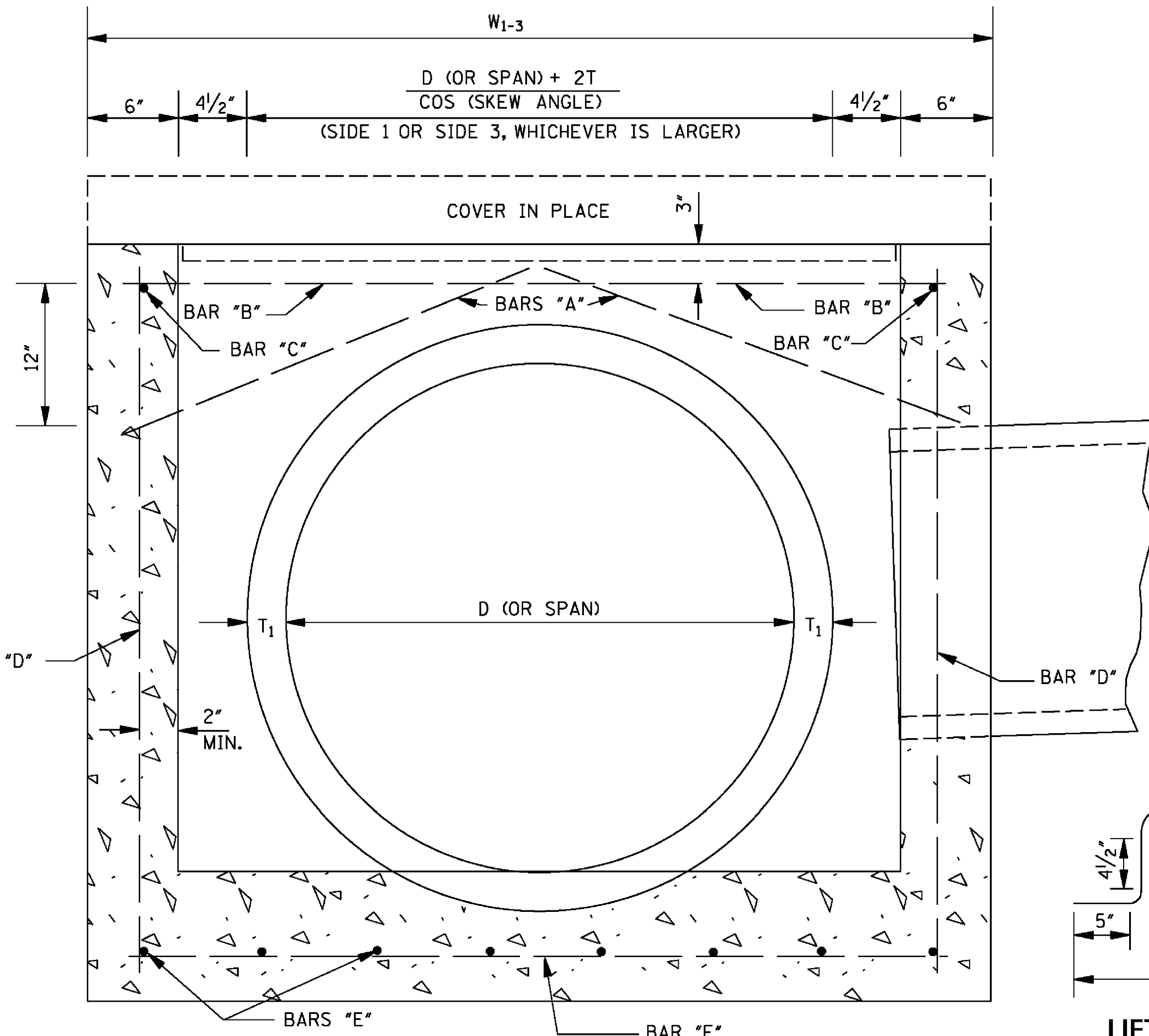
ELEVATION OF COVER



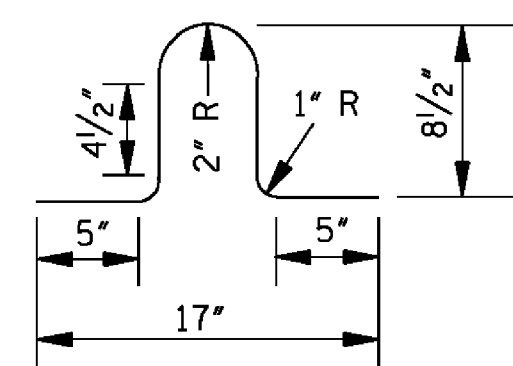
SECTION B-B



PLAN



SECTION A-A



LIFT BAR

NOTE: LIFT BAR TO BE FABRICATED FROM A #4 BAR 30" LONG. TWO LIFT BARS ARE REQUIRED. REINFORCING STEEL FOR 2 LIFT BARS = 3.3 lbs.

REINFORCING BAR LIST

BAR	SIZE	NUMBER REQUIRED	LENGTH
A	#4	2 PER PIPE OPENING	$\sqrt{196 + \left(\frac{W^*}{2} + 2\right)^2}$
B	#4	2	$W_{1-3} - 6"$
C	#4	2	$W_{2-4} - 6"$
D	#4	4	$H - 6"$
E	#4	$2 \left[\left(\frac{W_{1-3}}{9"} \right) ** + 1 \right]$	$W_{2-4} - 4"$
F	#4	$2 \left[\left(\frac{W_{2-4}}{9"} \right) ** + 1 \right]$	$W_{1-3} - 4"$

NOTE: VARIABLES AND DESIGNATIONS ARE AS FOLLOWS:
D (OR SPAN) = PIPE DIAMETER (OR SPAN)
 W_{1-3} = WIDTH OF SIDE 1 & SIDE 3
 W_{2-4} = WIDTH OF SIDE 2 & SIDE 4
 W^* = W_{1-3} OR W_{2-4} (SIDE OF ENTERING PIPE)
** = ROUND TO NEAREST WHOLE NUMBER

CL. "B" CONC. (yd³) = $\left[(Q1 + Q2) / 46,656 \right] - \sum \text{PIPE OPENING DEDUCTIONS}$
WHERE: $Q1 = [5"W_{1-3}W_{2-4}] + [1"(W_{1-3} - 12.5"W_{2-4} - 12.5") + [(T1 + 6")W_{1-3}W_{2-4}]]$
 $Q2 = 12"[H - (T1 + 6")][(W_{1-3} - 12") + W_{2-4}]$

COMMON PIPE SIZE

CIRCULAR PIPE			ARCH PIPE		
PIPE SIZE	T	PIPE OPENING DEDUCTION (yd ³)	PIPE SIZE	T	PIPE OPENING DEDUCTION (yd ³)
18"	2 1/2"	0.053	22" x 13"	2 1/2"	0.053
24"	3"	0.091	29" x 18"	3"	0.087
30"	3 1/2"	0.138	36" x 23"	3 1/2"	0.129
36"	4"	0.196	44" x 27"	4"	0.185
42"	4 1/2"	0.263	51" x 31"	4 1/2"	0.245
48"	5"	0.340	58" x 36"	5"	0.318
54"	5 1/2"	0.427	65" x 40"	5 1/2"	0.394
60"	6"	0.524	73" x 45"	6"	0.489
66"	6 1/2"	0.630			
72"	7"	0.747			

GENERAL NOTES:

- REINFORCING STEEL QUANTITIES TO BE COMPUTED FROM BAR LIST AND SHOWN ELSEWHERE ON THE PLANS.
- QUANTITIES FOR JUNCTION BOXES SHOWN ON THE PLANS WILL BE THE BASIS FOR PAYMENT UNLESS AUTHORIZED MODIFICATIONS ARE MADE.
- CONCRETE SHALL BE CLASS "B" AND REINFORCING STEEL SHALL BE DEFORMED BARS.
- SIDE 1 OF THE JUNCTION BOX WILL ALWAYS BE THE OUTFLOW SIDE.
- IF PIPES ARE SKEWED MORE THAN 15° OR IF SKEWED PIPES PRODUCE CONFLICTS WITH ANOTHER OPENING, THE PIPE SHALL BE BROKEN BACK TO THE WALL OF THE JUNCTION BOX.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

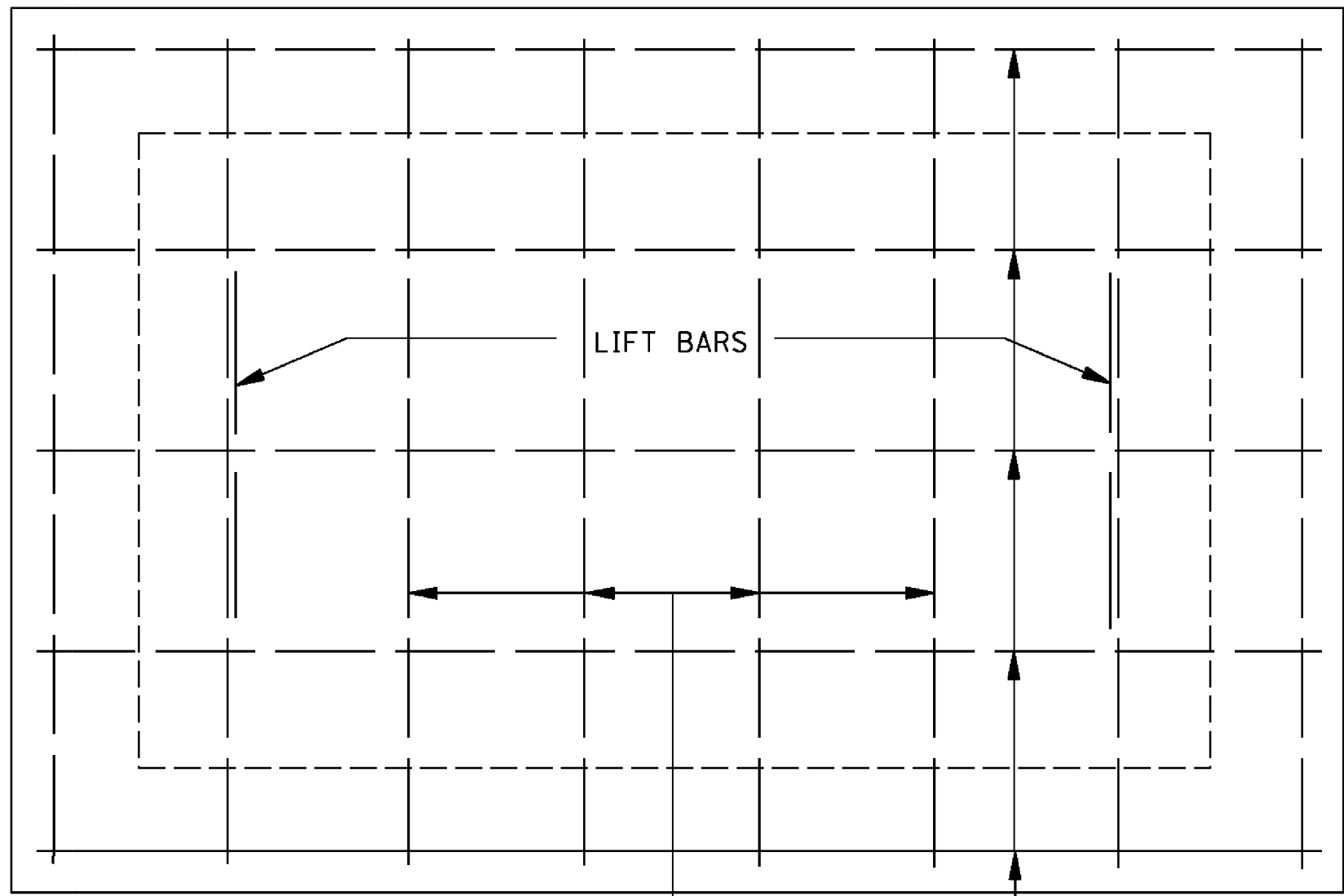
JUNCTION BOX
FOR PIPE CULVERTS



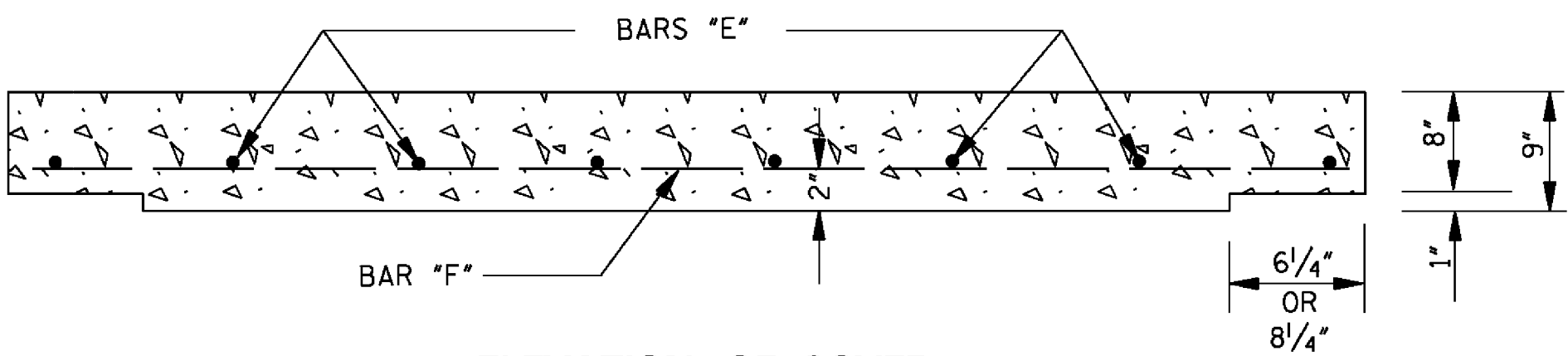
WORKING NUMBER
JB-1

SHEET NUMBER
6504

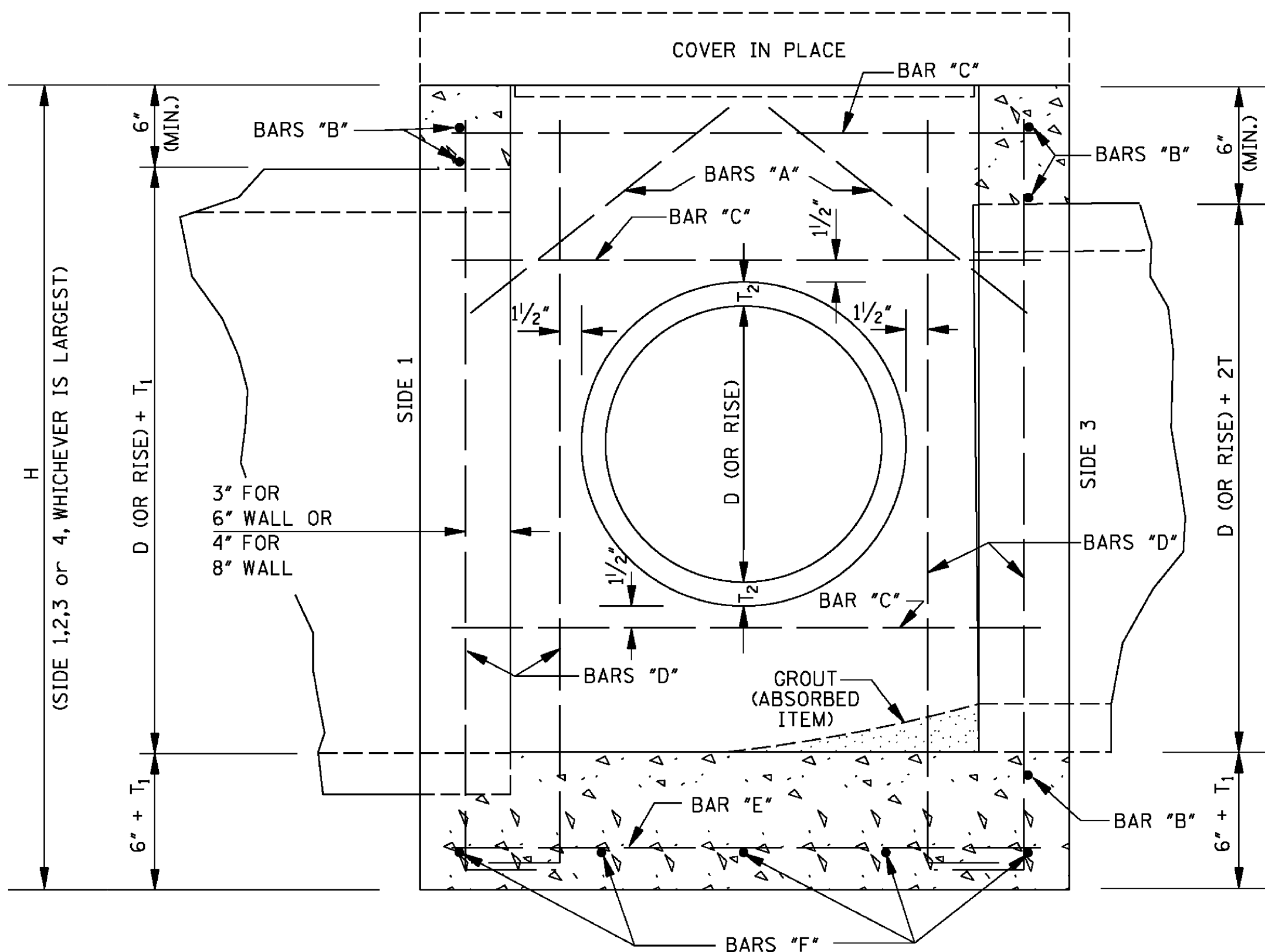
ISSUE DATE: AUGUST 01, 2017



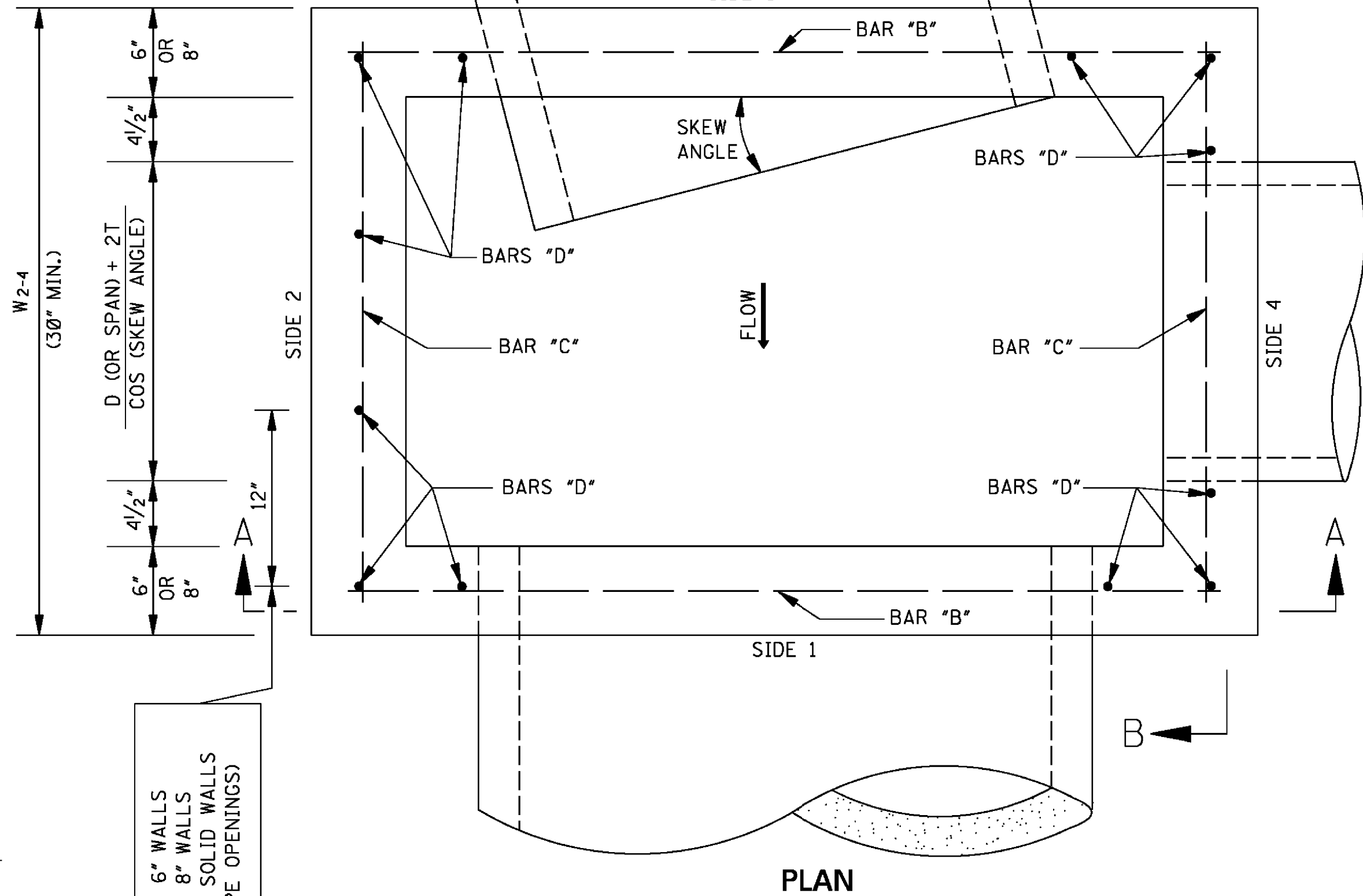
PLAN OF COVER



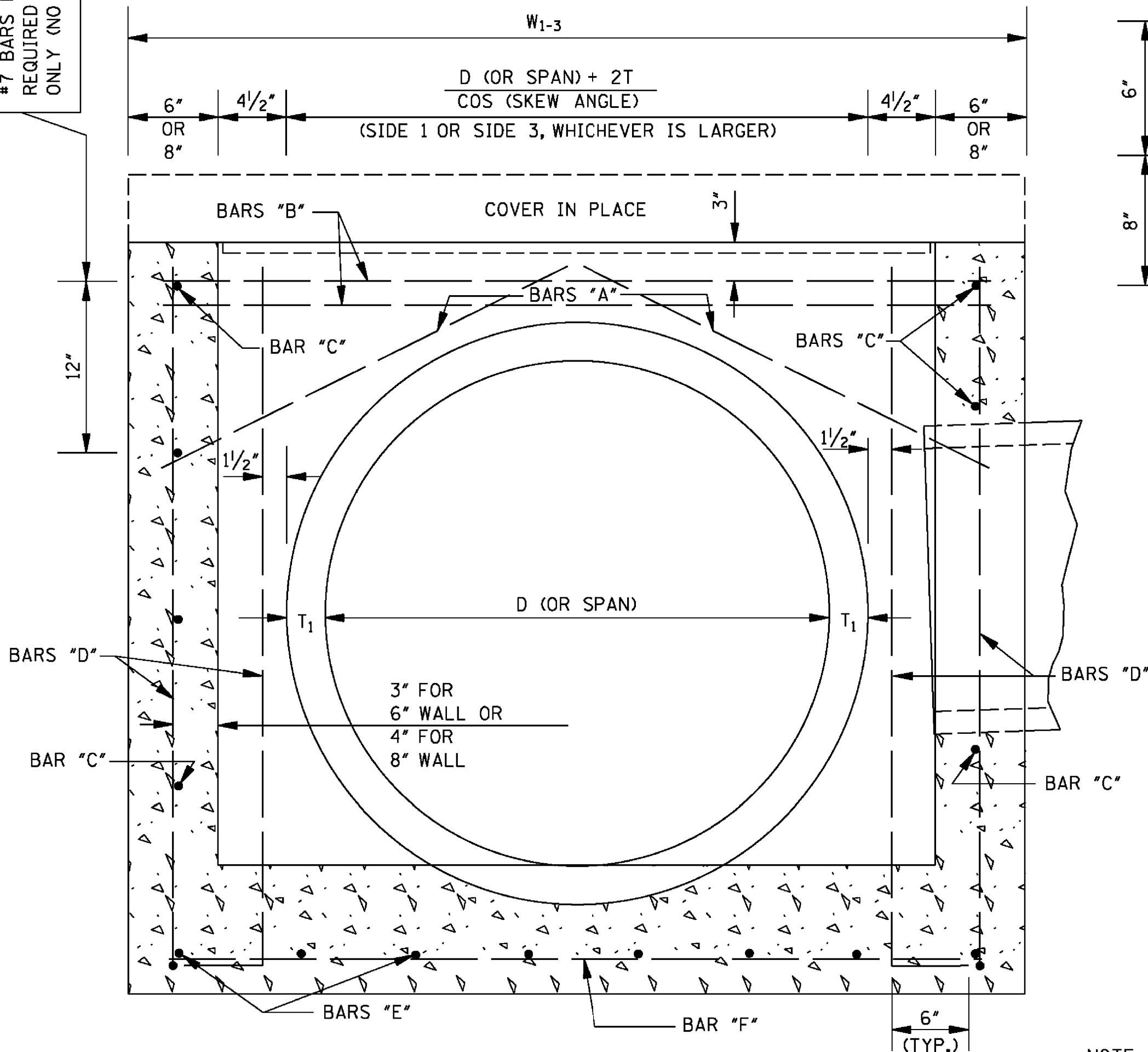
ELEVATION OF COVER



SECTION B-B



PLAN



SECTION A-A

REINFORCING BAR LIST			
BAR	SIZE	NUMBER REQUIRED	LENGTH
"A"	#4	2 PER PIPE OPENING	$\sqrt{196^* + \left(\frac{W^*}{2} + 2^*\right)^2}$
"B"	#6 FOR 6" WALL #7 FOR 8" WALL	2 + [2 PER OPENING SIDE 3] + [1 PER SIDE 1] + [12" O.C. FOR SOLID WALL]	$W_{1-3} - 4"$
"C"		2 + [2 PER OPENING] + [12" O.C. FOR SOLID WALL]	$W_{2-4} - 4"$
"D"		4 + [2 PER OPENING] + [12" O.C. FOR SOLID WALL]	H
"E"	#6	$2 \left[\left(\frac{W_{1-3}}{6^*} \right)^{**} + 1 \right]$	$W_{2-4} - 4"$
"F"	#6	$2 \left[\left(\frac{W_{2-4}}{6^*} \right)^{**} + 1 \right]$	$W_{1-3} - 4"$

NOTE: VARIABLES AND DESIGNATIONS ARE AS FOLLOWS:
D (OR SPAN) = PIPE DIAMETER (OR SPAN)
W₁₋₃ = WIDTH OF SIDE 1 & SIDE 3
W₂₋₄ = WIDTH OF SIDE 2 & SIDE 4
W* = W₁₋₃ OR W₂₋₄ (SIDE OF ENTERING PIPE)
** = ROUND TO NEAREST WHOLE NUMBER

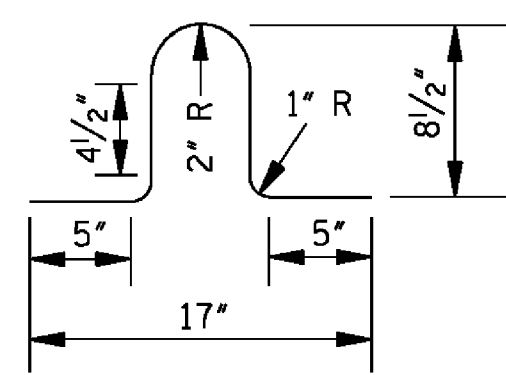
CL. "B" CONC. (yd³) = [(Q1 + Q2) / 46,656] - Σ PIPE OPENING DEDUCTIONS
WHERE: 6" WALL
Q1 = [8"W₁₋₃W₂₋₄] + [1"(W₁₋₃ - 12.5")(W₂₋₄ - 12.5")] + [(T₁ + 6")W₁₋₃W₂₋₄]
Q2 = 12"[H - (T₁ + 6")][(W₁₋₃ - 12") + W₂₋₄]
OR: 8" WALL
Q1 = [8"W₁₋₃W₂₋₄] + [1"(W₁₋₃ - 16.5")(W₂₋₄ - 16.5")] + [(T₁ + 6")W₁₋₃W₂₋₄]
Q2 = 16"[H - (T₁ + 6")][(W₁₋₃ - 16") + W₂₋₄]

COMMON PIPE SIZE					
CIRCULAR PIPE				ARCH PIPE	
PIPE SIZE	T	PIPE OPENING DEDUCTION (yd ³)		PIPE SIZE	T
		6" WALL	†8" WALL		
18"	2 1/2"	0.053	0.071	22" X 13"	2 1/2"
24"	3"	0.091	0.121	29" X 18"	3"
30"	3 1/2"	0.138	0.184	36" X 23"	3 1/2"
36"	4"	0.196	0.261	44" X 27"	4"
42"	4 1/2"	0.263	0.350	51" X 31"	4 1/2"
48"	5"	-	0.453	58" X 36"	5"
54"	5 1/2"	-	0.569	65" X 40"	5 1/2"
60"	6"	-	0.699	73" X 45"	6"
66"	6 1/2"	-	0.840		
72"	7"	-	0.996		

† NOTE: IF ANY PIPE REQUIRING A 8" WALL IS USED, ALL WALLS SHALL BE 8" REGARDLESS OF PIPE SIZE.

GENERAL NOTES:

- REINFORCING STEEL QUANTITIES TO BE COMPUTED FROM BAR LIST AND SHOWN ELSEWHERE ON THE PLANS.
- QUANTITIES FOR JUNCTION BOXES SHOWN ON THE PLANS WILL BE THE BASIS FOR PAYMENT UNLESS AUTHORIZED MODIFICATIONS ARE MADE.
- CONCRETE SHALL BE CLASS "B" AND REINFORCING STEEL SHALL BE DEFORMED BARS, ASTM A 615, GRADE 60 OR AASHTO M 31, GRADE 60.
- SIDE 1 OF THE JUNCTION BOX WILL ALWAYS BE THE OUTFLOW SIDE.
- IF PIPES ARE SKEWED MORE THAN 15° OR IF SKEWED PIPES PRODUCE CONFLICTS WITH ANOTHER OPENING, THE PIPE SHALL BE BROKEN BACK TO THE WALL OF THE JUNCTION BOX.

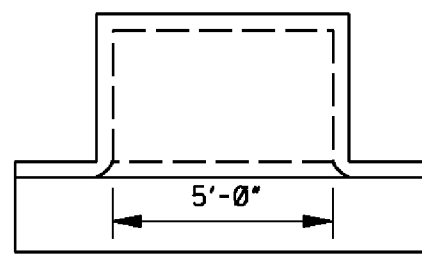


LIFT BAR

NOTE: LIFT BAR TO BE FABRICATED FROM A #4 BAR 30" LONG. TWO LIFT BARS ARE REQUIRED. REINFORCING STEEL FOR 2 LIFT BARS = 3.3 lbs.

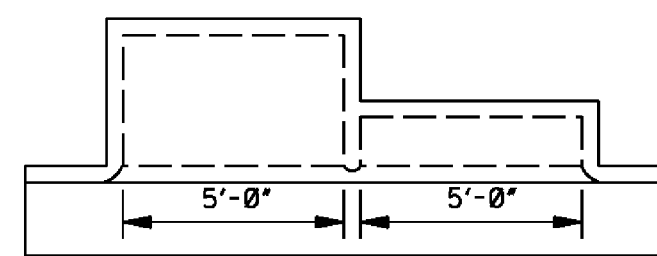
BY	MISSISSIPPI DEPARTMENT OF TRANSPORTATION
REVISION	ROADWAY DESIGN DIVISION
DATE	STANDARD PLAN
	JUNCTION BOX TYPE 2
	FOR TRAFFIC LOAD
	(MAXIMUM "W" = 9'-3")
	ISSUE DATE: AUGUST 01, 2017
	WORKING NUMBER JB-2
	SHEET NUMBER 6506

NOTES:
1. W AND H ARE EXPRESSED IN DECIMAL FEET.
2. W' = W ROUNDED TO NEAREST WHOLE FOOT.
3. Y = (H-0.5).
4. H' = (H - 2.08) ROUNDED TO NEAREST WHOLE FOOT.
5. NO DEDUCTIONS ARE MADE FOR PIPE OPENINGS IN FORMULAS.



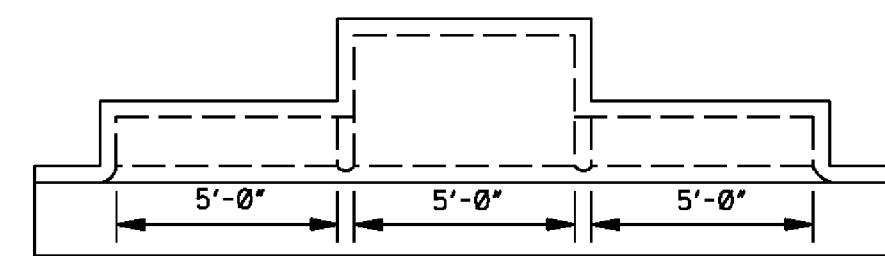
REGULAR INLET

5'-0" INLET
STEEL = $8.68W + 9.35Y + 3.79W' + 7.57H' + 121$
CONC. = $(WY + 5.5W + 6Y + 14.611)/27$



INLET WITH ONE EXTENSION

10'-0" INLET
STEEL = $8.68W + 9.35Y + 3.79W' + 7.57H' + 231$
CONC. = $(WY + 5.5W + 6Y + 38.641)/27$



INLET WITH TWO EXTENSIONS

15'-0" INLET
STEEL = $8.68W + 9.35Y + 3.79W' + 7.57H' + 341$
CONC. = $(WY + 5.5W + 6Y + 62.611)/27$

PLAN OF INLET AND EXTENSIONS

ADD. CONCRETE PER FOOT OF H		ADD. CONCRETE PER FOOT OF W	
W	yd ³ /ft	H	yd ³ /ft
2'-6"	0.315	3'-6"	0.315
3'-0"	0.333	4'-0"	0.333
3'-6"	0.352	4'-6"	0.352
4'-0"	0.371	5'-0"	0.370
4'-6"	0.389	5'-6"	0.389
5'-0"	0.408	6'-0"	0.408
5'-6"	0.426	6'-6"	0.426
6'-0"	0.445	7'-0"	0.445
6'-6"	0.463	7'-6"	0.463
7'-0"	0.481	8'-0"	0.482
		8'-6"	0.500

QUANTITIES FOR ONE EXTENSION					
BAR	SIZE	LENGTH	SPACING	NUMBER	TWEIGHT
E	#4	5'-8"	AS SHOWN	3	11
G	#4	SEE SCHEDULE	0'-11"	6	34
H	#6	6'-9"	AS SHOWN	5	51
L	#6	4'-9"	AS SHOWN	2	14
TOTAL STEEL FOR ONE EXTENSION = 110 lbs					
TOTAL CONCRETE FOR ONE EXTENSION = 0.89 yd ³					
NOTE: WHERE EXTENSION IS USED WITH CONCRETE PAVEMENT, ADD 27 lbs OF STEEL FOR BARS *M*.					

BAR "G" SCHEDULE	
BAR "G"	LENGTH
G1	7'-10"
G2	8'-0"
G3	8'-2"
G4	8'-5"
G5	8'-8"
G6	8'-10"

W=2'-6"		BILL OF REINFORCING STEEL FOR 1'-5'-0" INLET														* TOTAL STEEL	TOTAL CONC.
H	BAR "A" L = 4'-2" #4 @ 9"	BAR "C" L = 5'-8" #4 @ 9"	BAR "S" L = 5'-8" #4 @ 12"	BAR "D" L = 5'-8" #4 @ 12"	BAR "F" L = 9'-8" #6	BAR "J" L = 2'-3" #4	BAR "B" #4 @ 9"	BAR "K" #4 @ 9"	LGTH.	NO.	lbs	LGTH.	NO.	lbs	lbs		
3'-6"	6 17	7 27	5 19	5 19	5 73	4 6	3'-10"	7 18	2'-7"	7 12	190	2'-7"	7 12	190	1.99		
4'-0"	6 17	7 27	5 19	7 26	5 73	4 6	4'-4"	7 20	3'-1"	7 14	202	3'-1"	7 14	202	2.15		
4'-6"	6 17	7 27	5 19	7 26	5 73	4 6	4'-10"	7 23	3'-7"	7 17	207	3'-7"	7 17	207	2.31		
5'-0"	6 17	7 27	5 19	9 34	5 73	4 6	5'-4"	7 25	4'-1"	7 19	219	4'-1"	7 19	219	2.47		
5'-6"	6 17	7 27	5 19	9 34	5 73	4 6	5'-10"	7 27	4'-7"	7 21	224	4'-7"	7 21	224	2.62		
6'-0"	6 17	7 27	5 19	11 42	5 73	4 6	6'-4"	7 30	5'-1"	7 24	238	5'-1"	7 24	238	2.78		
6'-6"	6 17	7 27	5 19	11 42	5 73	4 6	6'-10"	7 32	5'-7"	7 26	240	5'-7"	7 26	240	2.94		
7'-0"	6 17	7 27	5 19	13 49	5 73	4 6	7'-4"	7 34	6'-1"	7 28	253	6'-1"	7 28	253	3.10		
7'-6"	6 17	7 27	5 19	13 49	5 73	4 6	7'-10"	7 37	6'-7"	7 31	257	6'-7"	7 31	257	3.25		

W=3'-0"		BILL OF REINFORCING STEEL FOR 1'-5'-0" INLET														* TOTAL STEEL	TOTAL CONC.
H	BAR "A" L = 4'-2" #4 @ 9"	BAR "C" L = 6'-2" #4 @ 9"	BAR "S" L = 5'-8" #4 @ 12"	BAR "D" L = 5'-8" #4 @ 12"	BAR "F" L = 9'-8" #6	BAR "J" L = 2'-3" #4	BAR "B" #4 @ 9"	BAR "K" #4 @ 9"	LGTH.	NO.	lbs	LGTH.	NO.	lbs	lbs		
3'-6"	6 19	7 29	5 19	5 19	5 73	4 6	3'-10"	7 18	2'-7"	7 12	194	2'-7"	7 12	194	2.15		
4'-0"	6 19	7 29	5 19	7 26	5 73	4 6	4'-4"	7 20	3'-1"	7 14	206	3'-1"	7 14	206	2.32		
4'-6"	6 19	7 29	5 19	7 26	5 73	4 6	4'-10"	7 23	3'-7"	7 17	211	3'-7"	7 17	211	2.49		
5'-0"	6 19	7 29	5 19	9 34	5 73	4 6	5'-4"	7 25	4'-1"	7 19	223	4'-1"	7 19	223	2.65		
5'-6"	6 19	7 29	5 19	9 34	5 73	4 6	5'-10"	7 27	4'-7"	7 21	228	4'-7"	7 21	228	2.82		
6'-0"	6 19	7 29	5 19	11 42	5 73	4 6	6'-4"	7 30	5'-1"	7 24	240	5'-1"	7 24	240	2.99		
6'-6"	6 19	7 29	5 19	11 42	5 73	4 6	6'-10"	7 32	5'-7"	7 26	245	5'-7"	7 26	245	3.15		
7'-0"	6 19	7 29	5 19	13 49	5 73	4 6	7'-4"	7 34	6'-1"	7 28	257	6'-1"	7 28	257	3.32		
7'-6"	6 19	7 29	5 19	13 49	5 73	4 6	7'-10"	7 37	6'-7"	7 31	262	6'-7"	7 31	262	3.49		

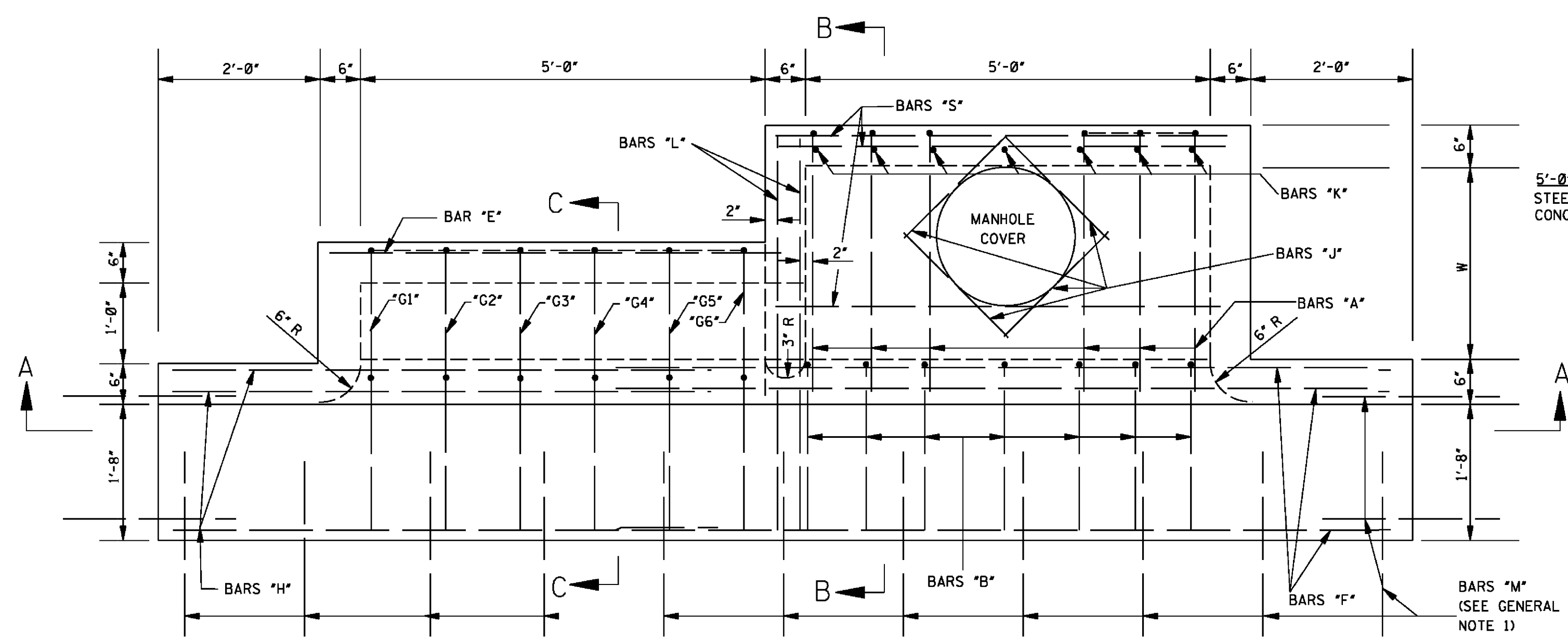
W=3'-6"		BILL OF REINFORCING STEEL FOR 1'-5'-0" INLET														* TOTAL STEEL	TOTAL CONC.
H	BAR "A" L = 5'-2" #4 @ 9"	BAR "C" L = 6'-8" #4 @ 9"	BAR "S" L = 5'-8" #4 @ 12"	BAR "D" L = 5'-8" #4 @ 12"	BAR "F" L = 9'-8" #6	BAR "J" L = 2'-3" #4	BAR "B" #4 @ 9"	BAR "K" #4 @ 9"	LGTH.	NO.	lbs	LGTH.	NO.	lbs	lbs		
3'-6"	6 21	7 31	5 19	6 23	5 73	4 6	3'-10"	7 18	2'-7"	7 12	202	2'-7"	7 12	202	2.31		
4'-0"	6 21	7 31	5 19	8 30	5 73	4 6	4'-4"	7 20	3'-1"	7 14	214	3'-1"	7 14	214	2.49		
4'-6"	6 21	7 31	5 19	8 30	5 73	4 6	4'-10"	7 23	3'-7"	7 17	219	3'-7"	7 17	219	2.66		
5'-0"	6 21	7 31	5 19	10 38	5 73	4 6	5'-4"	7 25	4'-1"	7 19	231	4'-1"	7 19	231	2.84		
5'-6"	6 21	7 31	5 19	10 38	5 73	4 6	5'-10"	7 27	4'-7"	7 21	236	4'-7"	7 21	236	3.01		
6'-0"	6 21	7 31	5 19	12 45	5 73	4 6	6'-4"	7 30	5'-1"	7 24	248	5'-1"	7 24	248	3.19		
6'-6"	6 21	7 31	5 19	12 45	5 73	4 6	6'-10"	7 32	5'-7"	7 26	253	5'-7"	7 26	253	3.37		
7'-0"	6 21	7 31	5 19	14 53	5 73	4 6	7'-4"	7 34	6'-1"	7 28	265	6'-1"	7 28	265	3.54		
7'-6"	6 21	7 31	5 19	14 53	5 73	4 6	7'-10"	7 37	6'-7"	7 31	270	6'-7"	7 31	270	3.72		

* NOTE: WHERE INLET IS USED WITH CONCRETE PAVEMENT, ADD 73 lbs OF STEEL FOR BARS *M*.

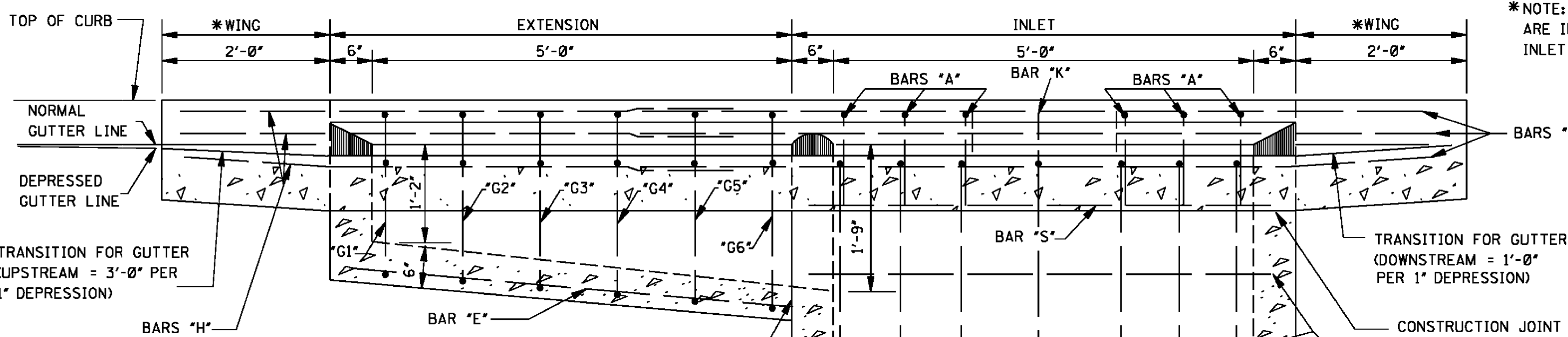
GENERAL NOTES:

- WHERE INLET OR INLET WITH EXTENSIONS IS USED WITH CONCRETE PAVEMENT WITH INTEGRAL CURB, THE PAVEMENT SHALL BE BLOCKED OUT TO THE DIMENSIONS AS SHOWN FOR THE GUTTER PORTION OF THE INLET OR INLET WITH EXTENSIONS. THE PORTION BLOCKED OUT SHALL BE PLACED INTEGRAL WITH THE TOP OF THE INLET OR INLET WITH EXTENSIONS. #8 DEFORMED BARS 30" LONG SHALL BE PLACED ON 18" CENTERS AT THE CENTER OF THE PAVEMENT. THESE BARS SHALL EXTEND INTO THE GUTTER PORTION OF THE INLET OR INLET WITH EXTENSIONS 15". THE CONSTRUCTION JOINT BETWEEN THE CONCRETE PAVEMENT AND THE INLET OR INLET WITH EXTENSIONS SHALL BE A KEYED JOINT AS SHOWN. A SMOOTH CONSTRUCTION JOINT WILL NOT BE PERMITTED. QUANTITIES FOR BLOCKED OUT AREA OF PAVEMENT SHALL BE INCLUDED IN QUANTITIES FOR INLET OR INLET WITH EXTENSIONS.
- THE QUANTITIES SHOWN, MINUS VOLUMETRIC DISPLACEMENT OF CONCRETE BY PIPE CULVERTS THROUGH INLET WALLS, WILL BE USED AS THE BASIS OF FINAL PAYMENT UNLESS THIS PLAN IS MODIFIED.
- FOR CONVENIENCE, DEPTHS OF INLETS SHOWN IN ABOVE TABLE ARE INCREMENTS OF 6". BUT ANY DEPTHS OTHER THAN THESE SHOWN MAY BE USED WHEREVER DEEMED NECESSARY. QUANTITIES FOR OTHER DEPTHS, FALLING WITHIN THE LIMITS OF THE TABLE, MAY BE FOUND BY INTERPOLATION.
- FIELD CUT AND BEND BARS AS NECESSARY TO ACCOMMODATE STORM SEWER. NO DEDUCTIONS ARE TO BE MADE IN STEEL QUANTITIES.
- WHERE INLET IS BEING USED ADJACENT TO SIDEWALK, REFER TO OTHER SHEETS FOR TOP DETAIL.

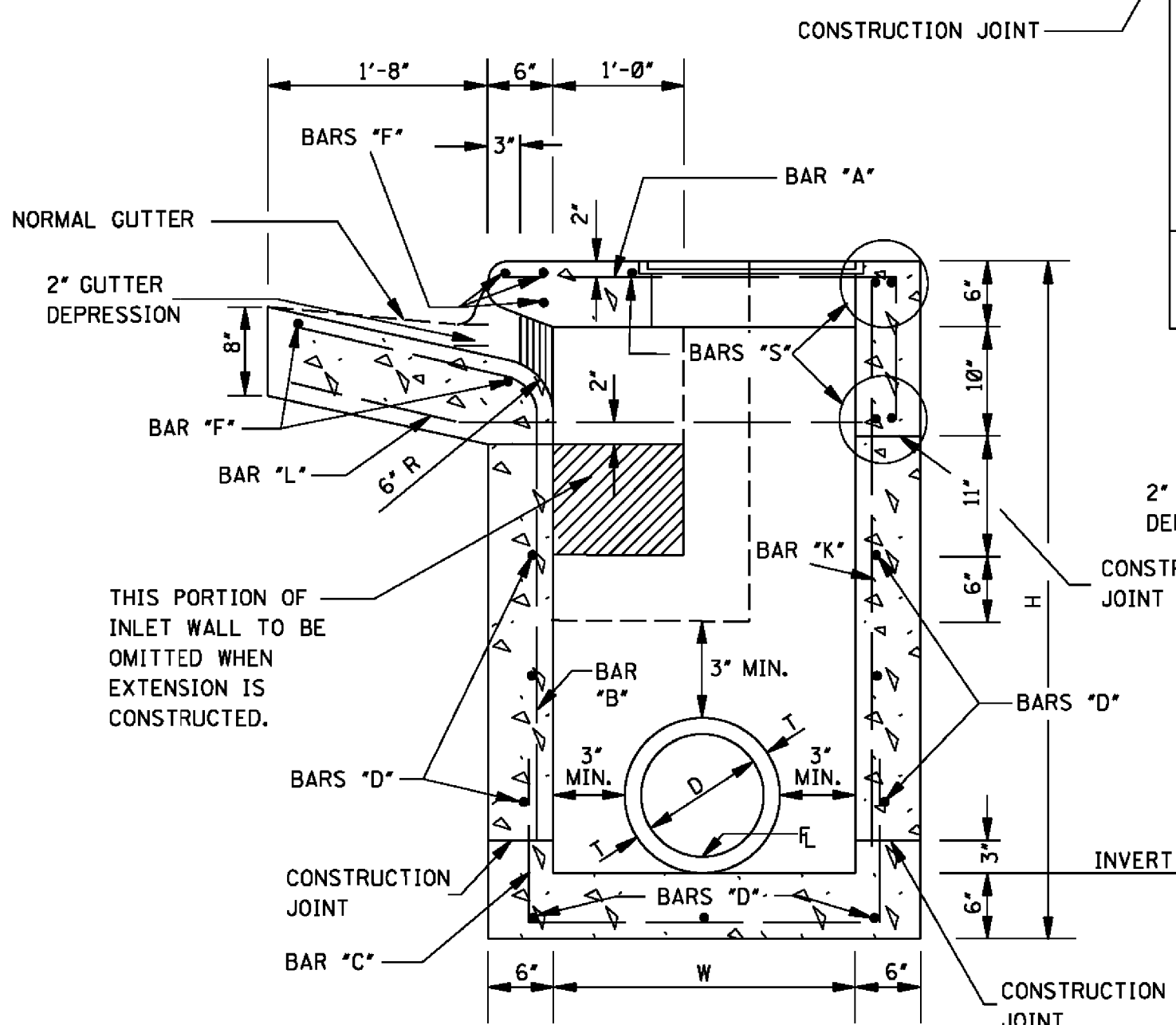
MISSISSIPPI DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION STANDARD PLAN	
STORM SEWER INLET TYPE SS-2	
	
WORKING NUMBER SS-2	SHEET NUMBER 6524
ISSUE DATE: AUGUST 01, 2017	



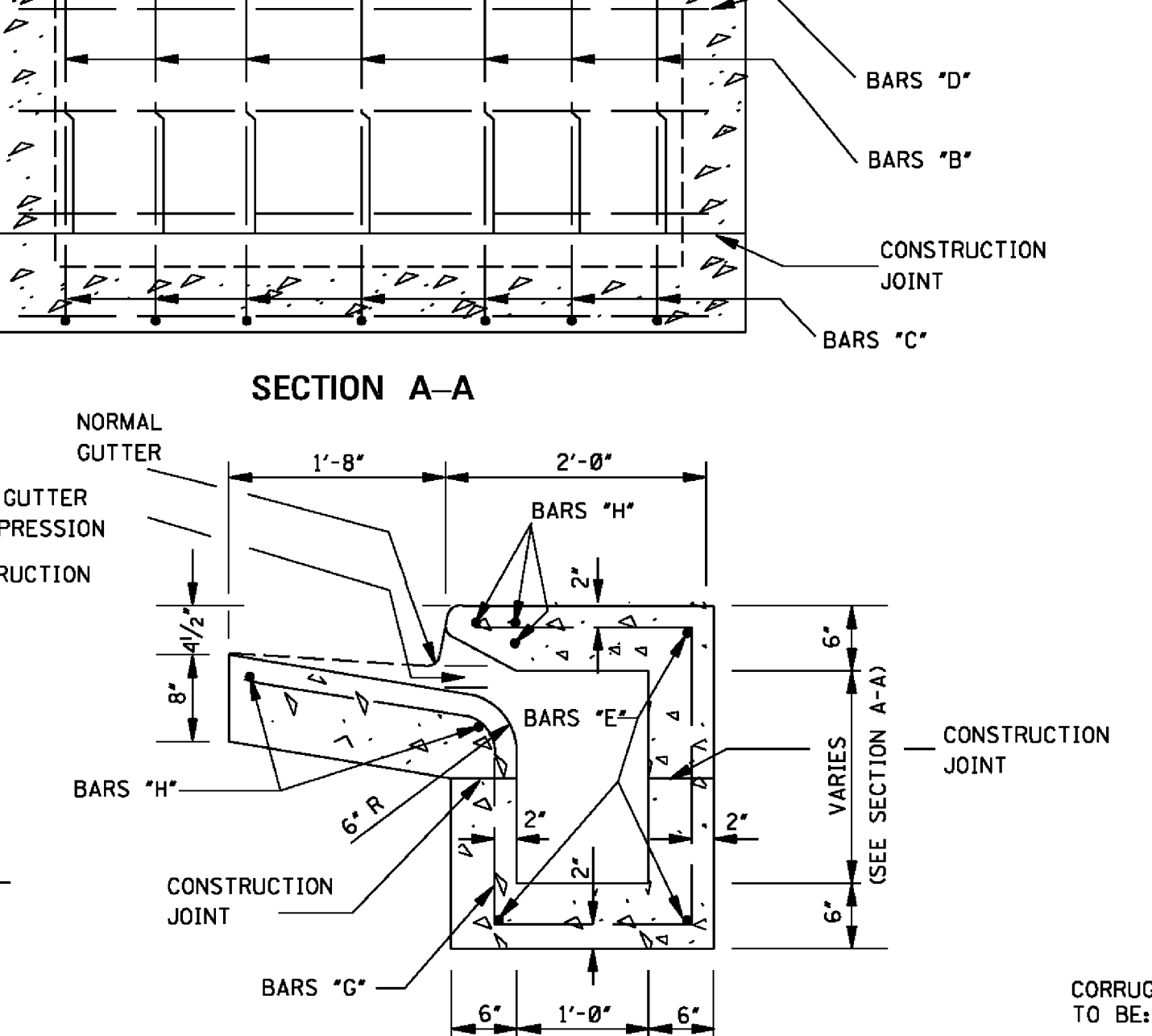
PLAN



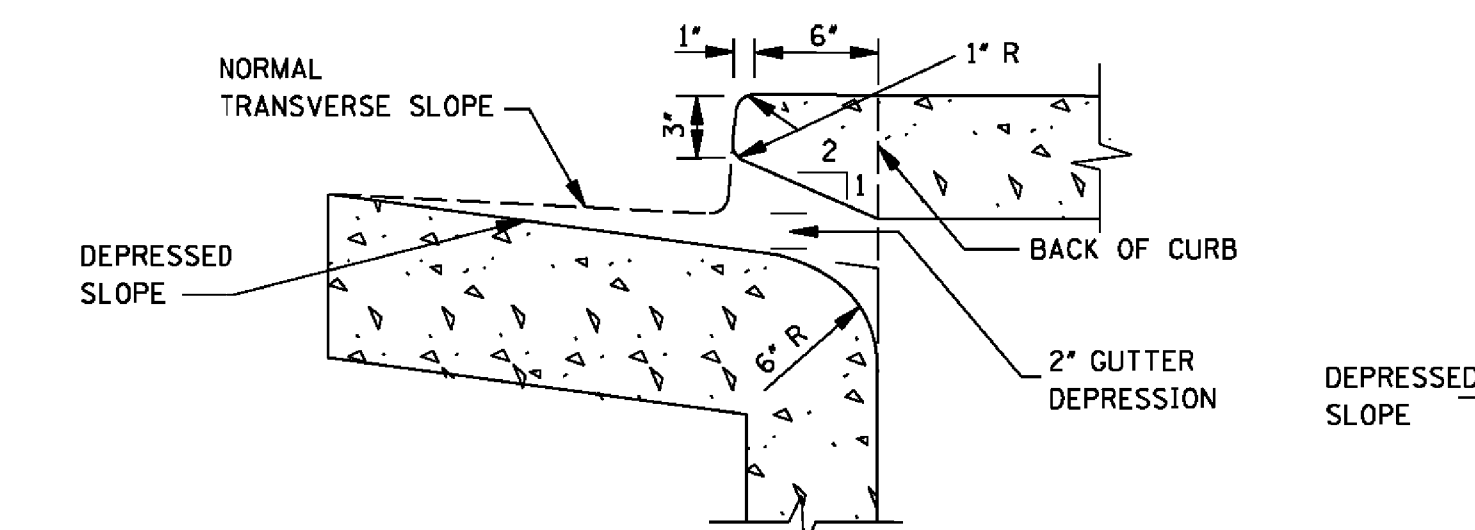
SECTION A-A



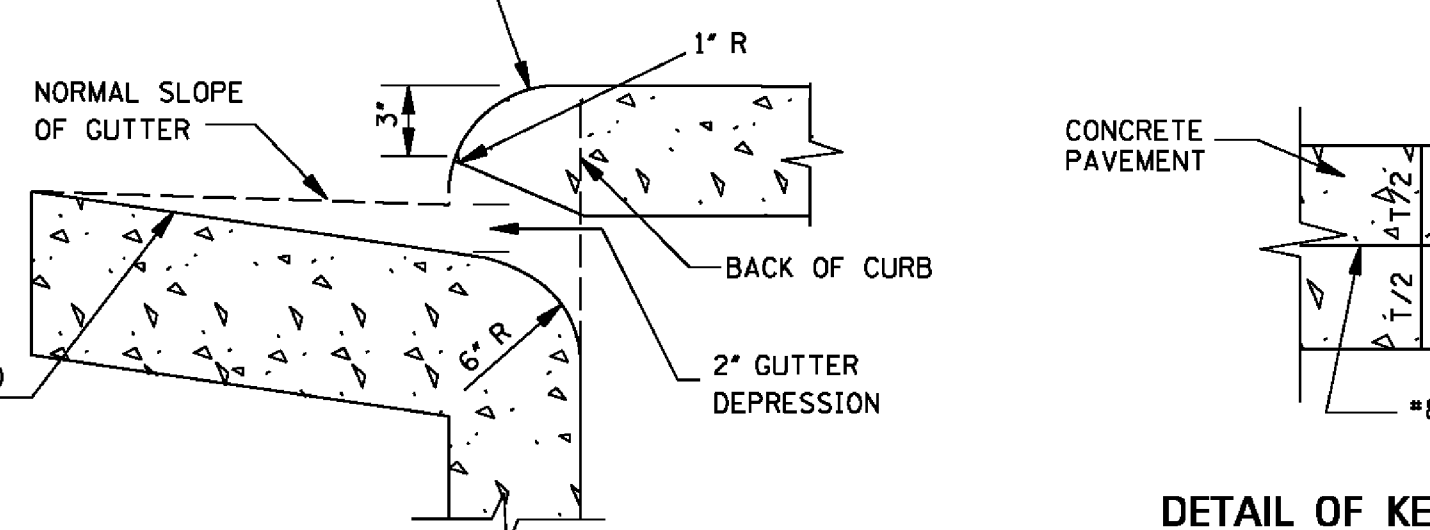
SECTION B-B



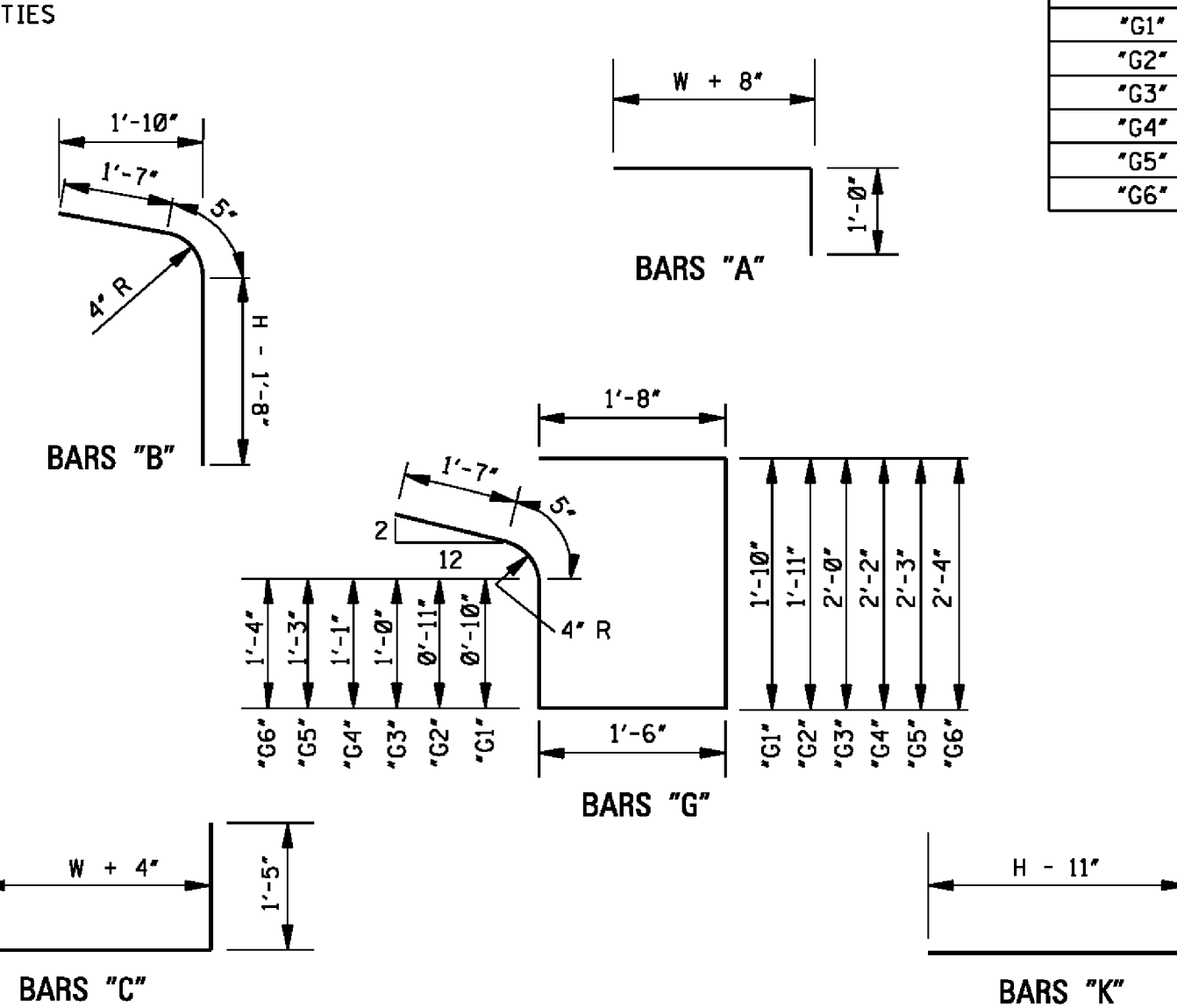
SECTION C-C



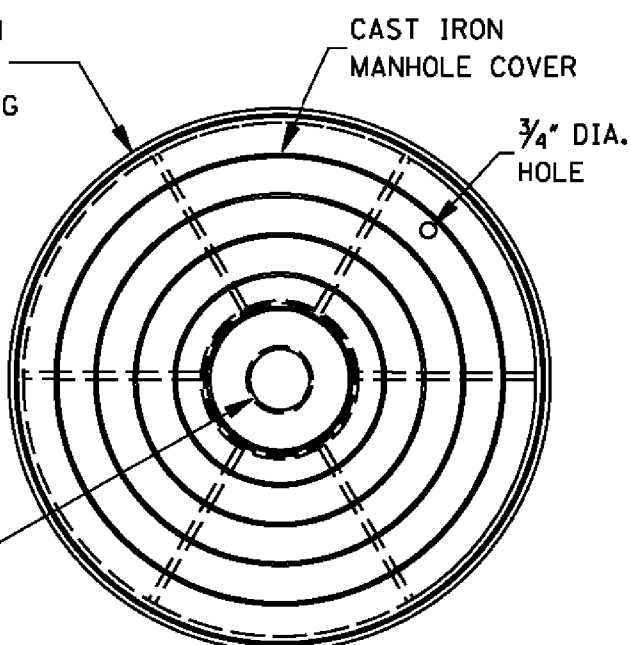
THROAT DETAIL OF BARRIER CURB



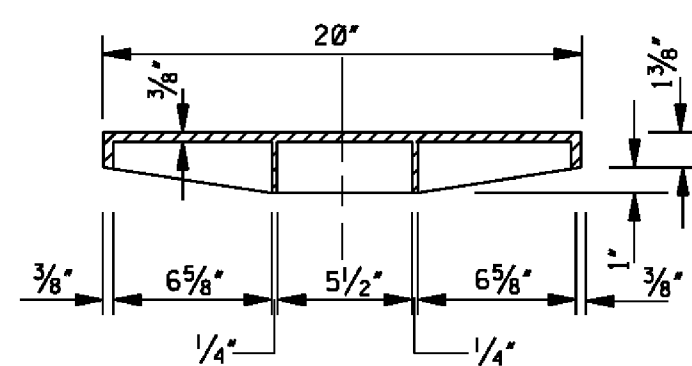
THROAT DETAIL OF ROLLED CURB



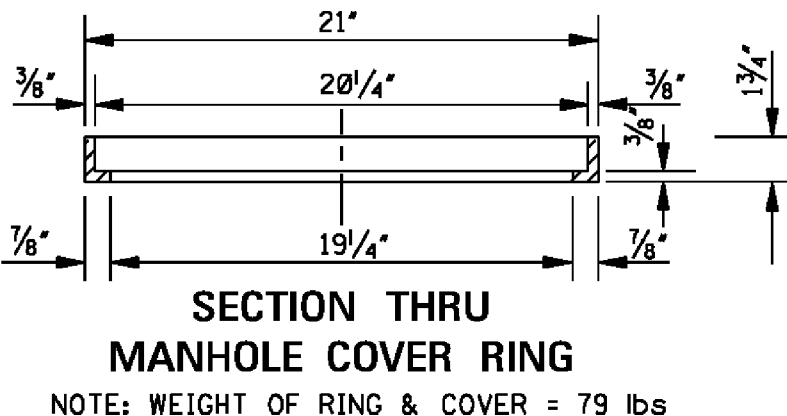
BAR DETAILS



PLAN



SECTION THRU
MANHOLE COVER



SECTION THRU
MANHOLE COVER RING

NOTE: WEIGHT OF RING & COVER = 79 lbs

DETAIL OF KEYED CONSTRUCTION JOINTS

NOTE: FIELD BEND BARS *L* TO CENTER OF GUTTER SECTION

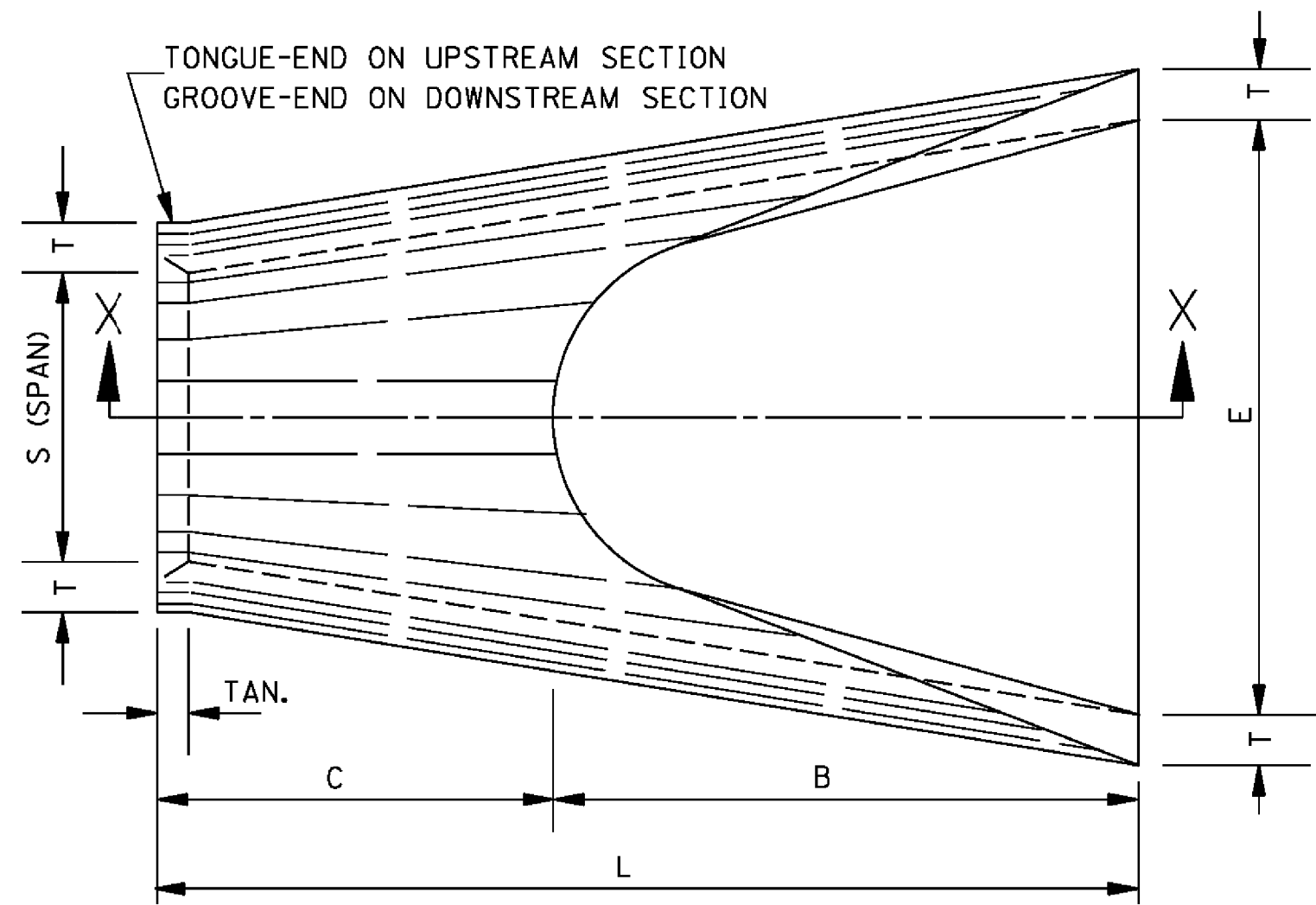
G:\PROJECTS\Albert and Associates\125819 - Hattiesburg Public Safety Complex\1258 City CAD\1258_Stand\Drawg.6531_5102018.12514 PM

BELL AND SPIGOT END OPTION TYPE I

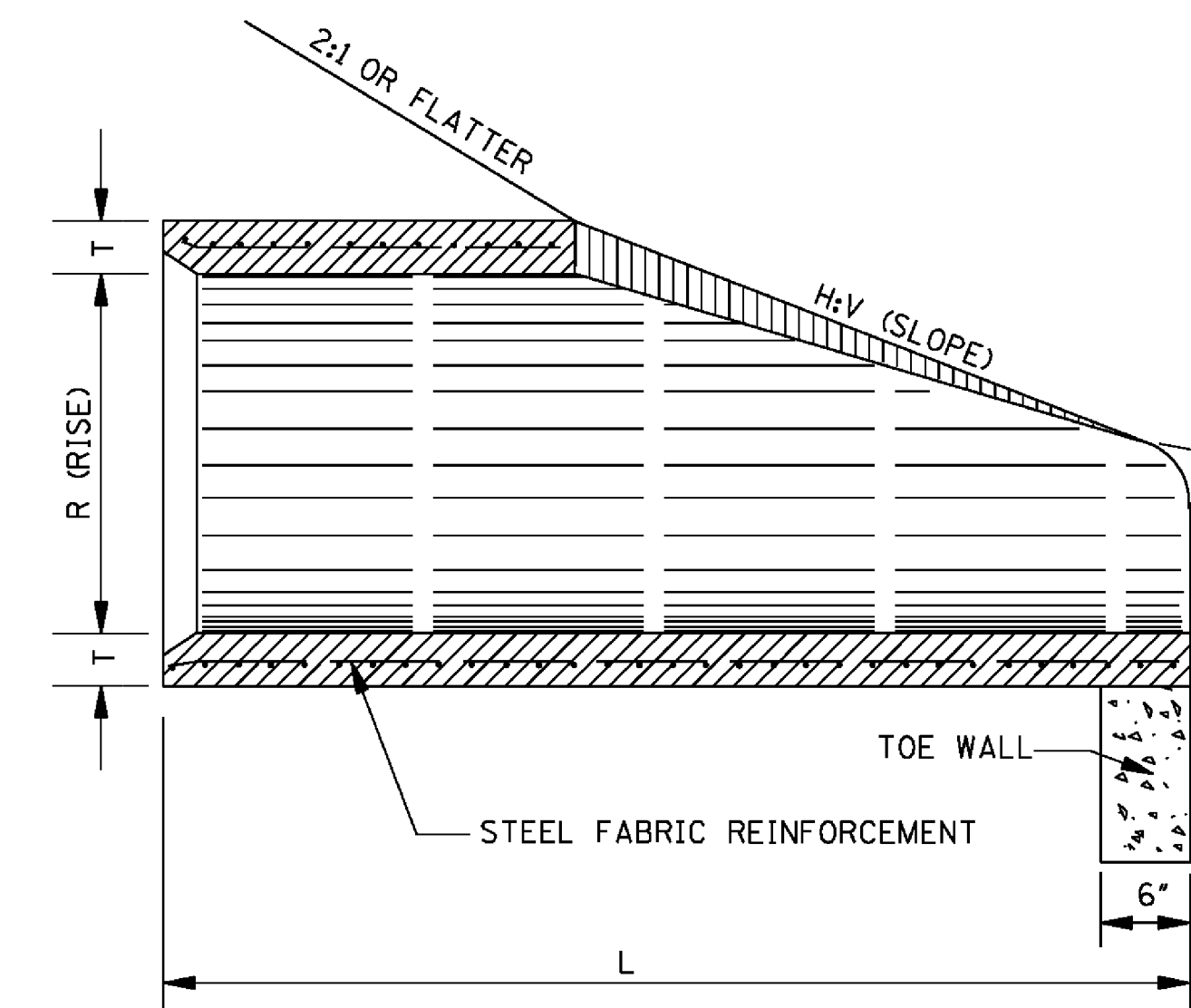
NOTE: BELL-END ON DOWNSTREAM SECTION
SPIGOT-END ON UPSTREAM SECTION.

FLARED END SECTION FOR CONCRETE ARCH PIPE										
EQUIV. SIZE	R	S	T	H:V	A	B	C	E	L	
18"	13 1/2"	22"	2 1/2"	3:1	7"	2'-3"	3'-9"	3'-0"	6'-0"	
24"	18"	28 1/2"	3"	3:1	8"	3'-3"	2'-9"	4'-0"	6'-0"	
30"	22 1/2"	36 1/4"	3 1/2"	3:1	10"	4'-0"	2'-0"	5'-0"	6'-0"	
36"	26 5/8"	43 3/4"	4"	3:1	10 5/8"	5'-0"	3'-0"	6'-0"	8'-0"	
42"	31 1/6"	51 1/8"	4 1/2"	3:1	1'-3 1/6"	5'-0"	3'-0"	6'-6"	8'-0"	
48"	36"	58 1/2"	5"	3:1	1'-9"	5'-0"	3'-0"	7'-0"	8'-0"	
54"	40"	65"	5 1/2"	3:1	2'-1 1/2"	5'-0"	3'-0"	7'-6"	8'-0"	
60"	45"	73"	6"	3:1	2'-2"	6'-3"	1'-9"	8'-0"	8'-0"	
72"	54"	88"	7"	3:1	2'-11"	6'-6"	1'-10"	10'-0"	8'-4"	

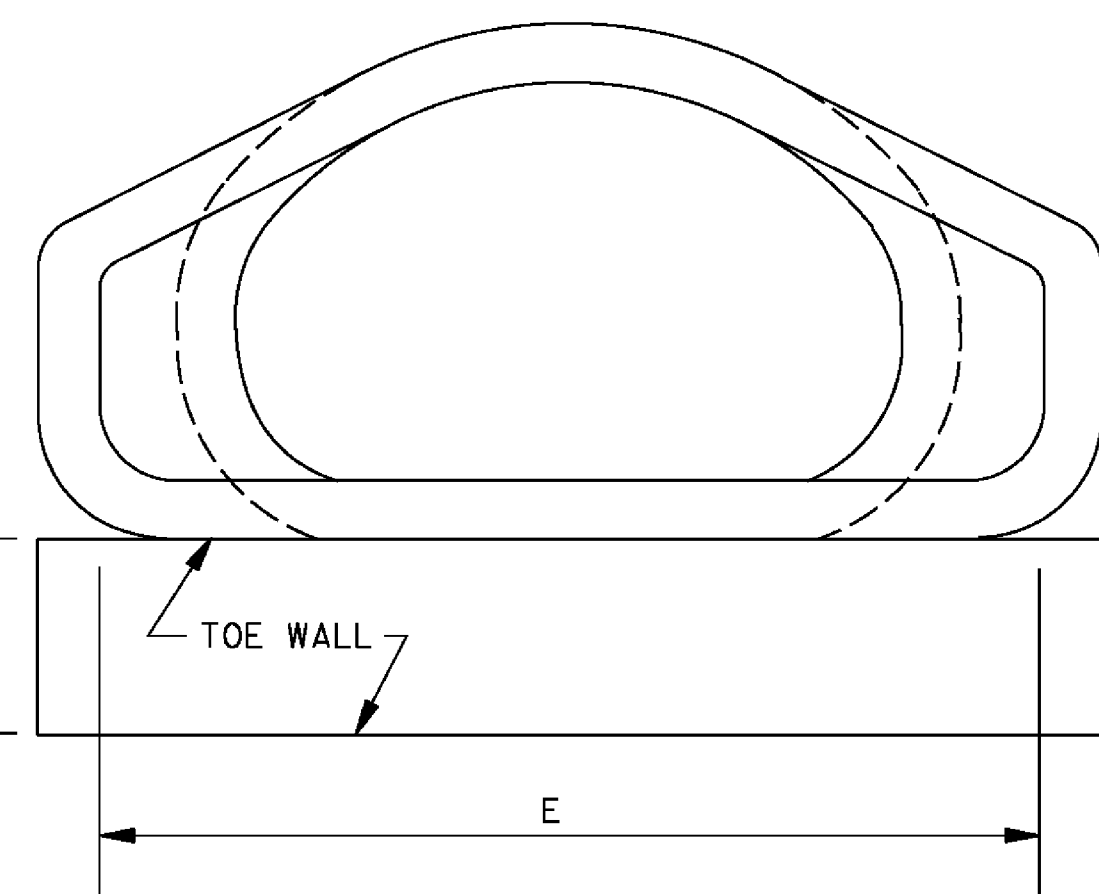
TOE WALL CONC. QUANTITY (yd ³)
0.063
0.083
0.102
0.123
0.134
0.145
0.156
0.167
0.207



PLAN OF DOWNSTREAM END



SECTION X-X



FRONT ELEVATION

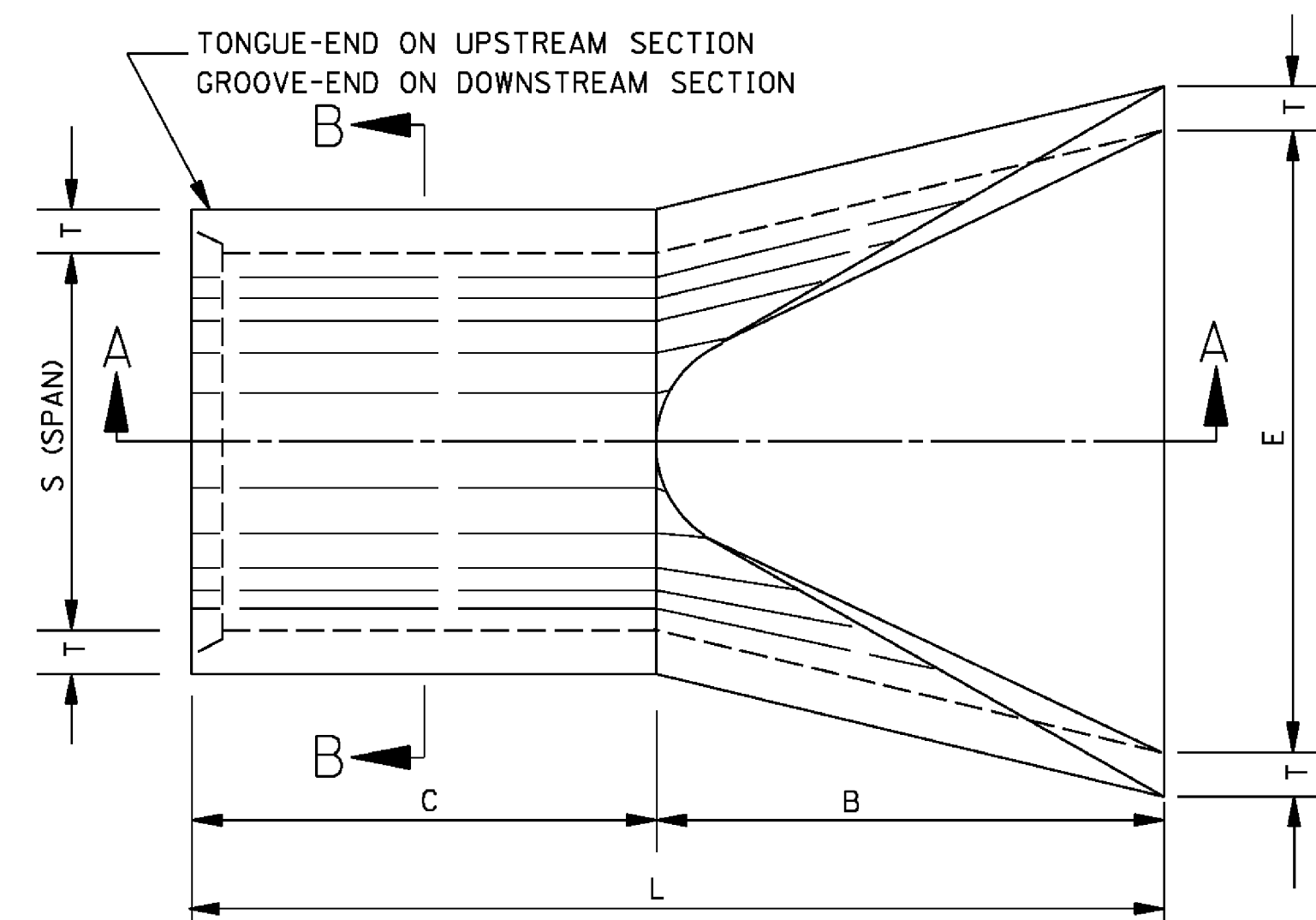
BELL AND SPIGOT END OPTION TYPE II

NOTE: BELL-END ON DOWNSTREAM SECTION
SPIGOT-END ON UPSTREAM SECTION.

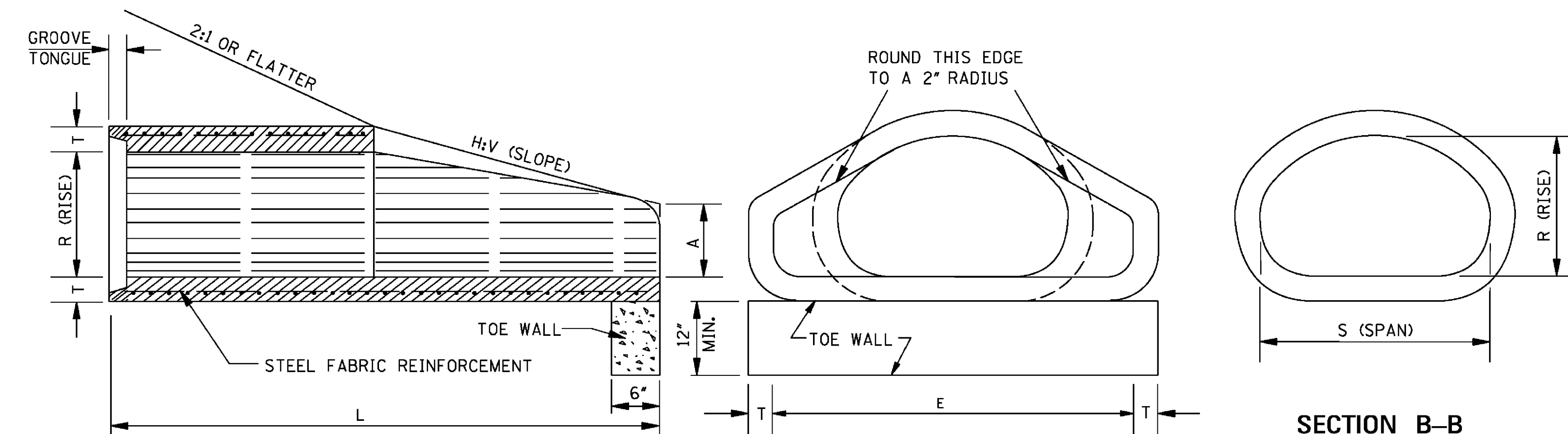
FLARED END SECTION FOR CONC. ARCH PIPE-SHORT FLARE											
EQUIV. SIZE	R	S	T	H:V	A	B	C	E	L	GROOVE TONGUE	
* 18"	13 1/2"	22"	2 1/2"	3:1	7"	2'-3"	3'-9"	3'-0"	6'-0"	2 1/4"	
24"	18"	28 1/2"	3 1/2"	3.12:1	9"	3'-3"	2'-9 1/2"	4'-0"	6'-0 1/2"	3"	
30"	22 1/2"	36 1/4"	4"	2.94:1	9 1/2"	4'-2"	3'-10 1/2"	5'-0"	8'-0 1/2"	3 1/2"	
36"	26 5/8"	43 3/4"	4 1/2"	3.08:1	11 5/8"	5'-0"	3'-0 1/2"	6'-0"	8'-0 1/2"	4"	
42"	31 1/6"	51 1/8"	4 1/2"	3.08:1	1'-4 5/6"	5'-0"	3'-0 1/2"	6'-6"	8'-0 1/2"	4"	
48"	36"	58 1/2"	5"	3.16:1	1'-10"	5'-0"	3'-0 1/2"	7'-0"	8'-0 1/2"	5"	
54"	40"	65"	5 1/2"	3.24:1	2'-3"	5'-0"	3'-0 5/8"	7'-6"	8'-0 5/8"	5"	
60"	45"	73"	6"	3.33:1	2'-9"	5'-0"	3'-0 5/8"	8'-0"	8'-0 5/8"	5"	

TOE WALL CONC. QUANTITY (yd ³)
0.063
0.083
0.102
0.123
0.134
0.145
0.156
0.167

NOTES: *1. EQUIVALENT 18" FLARED END SECTION SIMILAR TO TYPE I.
2. DIMENSIONS A, B, C, E AND L MAY VARY 1"±.



PLAN OF DOWNSTREAM END



SECTION A-A

FRONT ELEVATION

SECTION B-B

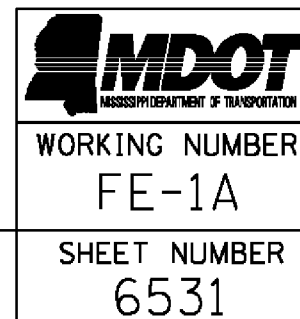
GENERAL NOTES:

- FLARED END SECTIONS SHOULD BE REGARDED AS OBSTACLES UNDER THE BELOW CONDITIONS AND AS SUCH SHOULD BE LOCATED OUTSIDE OF THE CLEAR ZONE.
 - CROSS DRAINS WITH SINGLE ROUND PIPES OF DIAMETER GREATER THAN 36" OR EQUIVALENT FOR ARCH PIPES.
 - CROSS DRAINS WITH MULTIPLE ROUND PIPES OF DIAMETER GREATER THAN 30" OR EQUIVALENT FOR ARCH PIPES.
 - PARALLEL SIDE DRAINS WITH SINGLE ROUND PIPES OF DIAMETER GREATER THAN 24" OR EQUIVALENT FOR ARCH PIPES.
- UNLESS OTHERWISE DESIGNATED, EITHER TYPE I OR TYPE II MAY BE USED, PROVIDED THE SELECTED TYPE IS COMPATIBLE WITH THE CONFIGURATION OF THE PIPE TO WHICH IT SHALL BE ATTACHED.

- ALL SIZES OF TYPE I AND TYPE II FLARED END SECTIONS FOR CONCRETE ARCH PIPE MAY BE FURNISHED WITH EITHER BELL AND SPIGOT OR TONGUE AND GROOVE ENDS.
- REINFORCEMENT (SINGLE LINE) FOR FLARED END SECTION SHALL CONFORM TO REQUIREMENTS OF AASHTO M 206 FOR CLASS II ARCH PIPE.
- TOE WALL REQUIRED ON ALL FLARED END SECTIONS. TO BE PAID FOR AS CLASS "B" STRUCTURAL CONCRETE - MINOR STRUCTURES.
- FLARED END SECTIONS MUST MEET THE REQUIREMENTS FOR ARCH PIPE OF EITHER AASHTO M 206 OR ASTM C 506.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

FLARED END SECTION
FOR CONCRETE ARCH PIPE



ISSUE DATE: AUGUST 01, 2017

*BASED ON 5" WALL THICKNESS; FOR 3 1/2" WALL, MULTIPLY BY 0.694

GRATE DETAILS

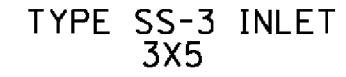
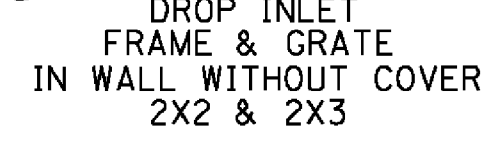
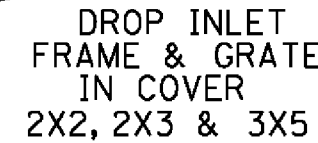
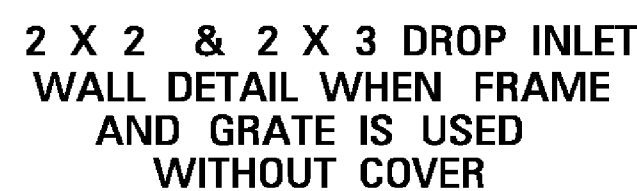
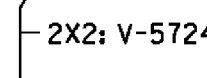
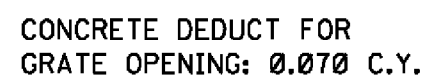
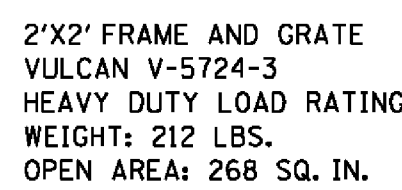
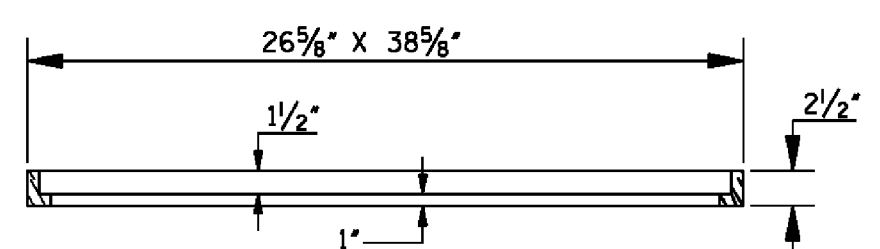
NOTE: CONCRETE CUBIC YARDS PER INLET/JUNCTION BOX = $\text{BOTTOM} + (\text{TOTAL RISE} \times \text{HEIGHT (FT)} \times \text{C.Y./FT}) + (\text{COVER} - \text{GRATE OPENING}) - \text{ANY HOLE OPENINGS}$

NOTE: CONCRETE CUBIC YARDS PER INLET/JUNCTION BOX = BOTTOM + (TOTAL RISER
HEIGHT (FT) X C.Y./FT) + (COVER - GRATE OPENING) - ANY HOLE OPENINGS

2' X 2' WALL REINFORCEMENT (SQ. IN. PER LIN. FT.)												
DEPTH OF INSTALLATION	BASE		TOP RISER		INTERIOR RISER #1		INTERIOR RISER #2		INTERIOR RISER #3		INTERIOR RISER #4	
	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT
Ø - 4	0.07	3.942	-	-	-	-	-	-	-	-	-	-
Ø - 8	0.13	5.862	0.07	3.942	-	-	-	-	-	-	-	-
Ø - 12	0.20	7.786	0.07	3.942	0.13	5.862	-	-	-	-	-	-

3' X 5' WALL REINFORCEMENT (SQ. IN. PER LIN. FT.)													
DEPTH OF INSTALLATION		TOP RISER			INTERIOR RISER #1		INTERIOR RISER #2		INTERIOR RISER #3		INTERIOR RISER #4		
FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	AREA	LB/FT	
0 - 8	0.30	21.939	0.24	17.3264	-	-	-	-	-	-	-	-	
0 - 12	0.74	53.570	0.24	17.3264	0.60	43.316	-	-	-	-	-	-	
0 - 16	0.88	61.526	0.24	17.3264	0.60	43.316	0.74	53.570	-	-	-	-	
0 - 20	1.14	78.146	0.24	17.3264	0.60	43.316	0.74	53.570	1.02	70.013	-	-	
0 - 24	1.44	98.654	0.24	17.3264	0.60	43.316	0.74	53.570	1.02	70.013	1.20	82.035	

NOTE: REINFORCEMENT STEEL (LBS PER INLET/JUNCTION BOX) = BOTTOM + TOTAL FOR EACH RISER (TOP PLUS ANY INTERIOR RISERS) (BASE HEIGHT + TOTAL HEIGHT OF RISERS) + COVER; HOLE AND GRATE OPENINGS NOT DEDUCTED



- MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

PRECAST UNITS
(JUNCTION BOX, SS-3 INLET, &
DROP INLET) (30" CONC. ROUND
PIPE & UNDER) (36"X23" CONC.
ARCH PIPE & UNDER)

DATE: ISSUE DATE: AUGUST 01, 2017

AWING No.: 11258



Engineering Progress

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

**INFRASTRUCTURE REHABILITATION
ARLEDGE STREET & KATIE AVENUE AREA**

FOR THE

**CITY OF HATTIESBURG
LAMAR COUNTY
MISSISSIPPI**

MAY 2018



PREPARED BY:

**SHOWS, DEARMAN & WAITS, INC.
CONSULTING ENGINEERS**

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ADVERTISEMENT FOR BIDS

NOTICE is hereby given that the City Clerk of the **City of Hattiesburg**, MISSISSIPPI, will receive sealed bids until **10:00 A.M. on June 28, 2018** in City Council Chambers at City Hall, 200 Forrest Street, Hattiesburg, MS 39401, and then at said location will open and read aloud bids received for furnishing the City's requirements for the following:

INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA HATTIESBURG, MISSISSIPPI

Official bid documents can be downloaded from Central Bidding at www.centralbidding.com. Electronic bids can be submitted at www.centralbidding.com. For any questions relating to the electronic bidding process, please call Central Bidding at 225-810-4814. All bids must be accompanied by bid security equal to 5% of the amount of the bid, in the form of a certified check, cashier's check or a bid bond written by a company properly licensed in Mississippi.

Each BID must be received sealed and marked EXACTLY as follows:

BID: INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA HATTIESBURG, MISSISSIPPI

No bid may be withdrawn for a period of sixty (60) days. The lowest and best proposal received will be accepted, subject to the provisions of Section 31-7-13 of the Mississippi Code of 1972, Annotated and Amended, and other applicable State law; but the Council reserves the right to reject any or all proposals received and to waive informalities.

PUBLISHED by Order of the Council on the ____ day of _____ A.D., 2018.

CITY OF HATTIESBURG, MISSISSIPPI

BY: _____
Kermas Eaton, City Clerk

Publish on May 31, 2018 and June 7, 2018
City of Hattiesburg
Return PROOF to City Clerk's Office
PO Box 1898
Hattiesburg, MS 39403

INFORMATION FOR BIDDERS

BIDS will be received by the CITY OF HATTIESBURG, MISSISSIPPI herein called the "OWNER", at City Hall until 10:00 A.M. on June 28, 2018, and then at said office publicly opened and read aloud.

Each BID must be submitted in sealed envelope, addressed to the City Clerk of said City. Each sealed envelope containing a BID must be plainly marked on the outside as BID for **Infrastructure Rehabilitation, Arledge Street & Katie Avenue Area, Hattiesburg, Mississippi** and the envelope should bear on the outside the BIDDER'S name, address, and license number if applicable. If forwarded by mail, the sealed BID shall be included in a delivery package addressed to the Owner at 200 Forrest Street, Hattiesburg, MS 39401.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID BOND payable to the OWNER for five percent (5%) of the total amount of the BID. As soon as the BID prices have been compared, the

OWNER will return the BONDS of all except the three lowest responsive, responsible BIDDERS. When the Agreement is executed the BONDS of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the PAYMENT BOND and PERFORMANCE BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A PERFORMANCE BOND and a PAYMENT BOND, each in the amount of 100 percent (100%) of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or PAYMENT BONDS and PERFORMANCE BONDS must file with each BOND a certified and effective dated copy of their Power of Attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the PERFORMANCE BOND and PAYMENT BOND within ten (10) calendar days from the date when NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable PERFORMANCE BOND, PAYMENT BOND and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw the signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period; the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsible BIDDER.

All applicable Laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

FURTHER, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the SUPPLEMENTAL GENERAL CONDITIONS.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

The ENGINEER is SHOWS, DEARMAN & WAITS, INC. The address of the ENGINEER is 301 2nd Avenue, Hattiesburg, MS 39401.

PROPOSAL FORM

I (we) agree to begin work within (10) calendar days after the issuance of Work Order, and to complete the work within ____ calendar days thereafter.

It is understood that the quantities of work listed for unit prices bid are approximate, and are intended to merely indicate the general scope of the various items entering into the complete work. It is further understood and agreed that the Owner may increase or decrease the quantities listed in the Proposal to an extent equivalent to 30% of the bid price (in dollars) and that no change in the unit prices proposed shall be occasioned thereby.

The undersigned further agrees that the unit and lump sum prices quoted include all items of work required or necessary for the accomplishment of the projected work and that these items include all work indicated on the Plans and Specifications for which no specific pay items have been established.

The undersigned certifies that the bid prices contained herein have been carefully checked and are submitted as correct and final.

If within sixty (60) days the scheduled closing time for receipt of bids, this Proposal is accepted, the undersigned will execute a formal contract within ten (10) days after official notification thereof, will deliver a surety bond for the faithful performance of this contract, and will complete the work within the time specified from the date of execution of the contract.

Respectfully Submitted,

Name of Firm or Bidder

By:

Address

City, State, Zip-Code

Note: All materials and components shall be a product of the U.S.A.

PROPOSAL
INFRASTRUCTURE REHABILITATION
ARLEDGE STREET & KATIE AVENUE AREA
HATTIESBURG, MISSISSIPPI

Arledge Street (Roadway)					
ITEM No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
1	Clearing and Grubbing	1	Lump Sum		
2	Removal of Asphalt Pavement, All Depths	685	Sq. Yd.		
3	Removal of Curb &/OR Curb and Gutter, All Types	707	Lin. Ft.		
4	Removal of Utilities	1	Lump Sum		
5	Excess Excavation, LVM, AH	65	Cu. Yd.		
6	Sand Bags	150	Each		
7	Wattles, 20"	150	Lin. Ft.		
8	Granular Material (LVM) (Class 9, Group B)	98	Cu. Yd.		
9	9.5 mm, MT, Asphalt Pavement	197	Ton		
10	19 mm, MT, Asphalt Pavement	81	Ton		
11	Cold Milling of Bituminous Pavement, All Depths	1,479	Sq. Yd.		
12	Concrete Driveway, Without Reinforcement, 6" Thick, Broom Finish	178	Sq. Yd.		
13	Combination Concrete Curb and Gutter, Per	520	Lin. Ft.		

	Plans				
14	Concrete Sidewalk, Without Reinforcement	386	Sq. Yd.		
15	Class "B" Structural Concrete - Minor Structures	26	Cu. Yd.		
16	Reinforcing Steel	2,370	Lbs.		
17	18" Reinforced Concrete Pipe, Class III, Rubber Type Gaskets	312	Lin. Ft.		
18	24" Reinforced Concrete Pipe, Class III, Rubber Type Gaskets	226	Lin. Ft.		
19	8" Corrugated Polyethylene Pipe	12	Lin. Ft.		
20	10" Corrugated Polyethylene Pipe	12	Lin. Ft.		
21	12" Corrugated Polyethylene Pipe	12	Lin. Ft.		
22	Castings	553	Lbs		
23	6" Thermoplastic Traffic Stripe, Continuous Yellow	1,490	Lin. Ft.		
24	Thermoplastic Detail Stripe, White	312	Lin. Ft.		
25	Thermoplastic Legend, White	142	Lin. Ft.		
26	Detectable Warning, Per Plans	165	Sq. Ft.		
27	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness	10	Sq. Ft.		
28	Steel U-Section Posts, 2.0 Lbs/Ft	52	Lin. Ft.		
29	Maintenance of Traffic	1	Lump Sum		
30	Mobilization	1	Lump Sum		
		Subtotal Arledge (Roadway)			

Katie Avenue (Roadway)					
ITEM No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
1	Clearing and Grubbing	1	Lump Sum		
2	Removal of Asphalt Pavement, All Depths	1,782	Sq. Yd.		
3	Removal of Concrete Pavement, All Depths	22	Sq. Yd.		
4	Removal of Concrete Walks, All Depths	217	Sq. Yd.		
5	Removal of Curb &/OR Curb and Gutter, All Types	440	Lin. Ft.		
6	Removal of Utilities	1	Lump Sum		
7	Removal of Inlet and Junction Box, All Types & Sizes	1	Each		
8	Remove and Reset Signs, All Sizes	2	Each		
9	Excess Excavation, LVM, AH	346	Cu. Yd.		
10	Sand Bags	150	Each		
11	Wattles, 20"	250	Lin. Ft.		
12	Granular Material (LVM) (Class 9, Group B)	519	Cu. Yd.		
13	9.5 mm, MT, Asphalt Pavement	97	Ton		
14	19 mm, MT, Asphalt Pavement	312	Ton		
15	Cold Milling of Bituminous Pavement, All Depths	20	Sq. Yd.		
16	Concrete Driveway, Without Reinforcement, 6" Thick, Broom Finish	91	Sq. Yd.		

17	Concrete Driveway, Without Reinforcement, 6" Thick, Stamped and Colored	19	Sq. Yd.		
18	Combination Concrete Curb and Gutter, Per Plans	723	Lin. Ft.		
19	Concrete Sidewalk, Without Reinforcement, Broom Finish	477	Sq. Yd.		
20	Concrete Sidewalk, Without Reinforcement, Stamped and Colored	16	Sq. Yd.		
21	Class "B" Structural Concrete - Minor Structures	42	Cu. Yd.		
22	Reinforcing Steel	3,568	Lbs.		
23	15" Reinforced Concrete Pipe, Class III, Rubber Type Gaskets	12	Lin. Ft.		
24	18" Reinforced Concrete Pipe, Class III, Rubber Type Gaskets	230	Lin. Ft.		
25	24" Reinforced Concrete Pipe, Class III, Rubber Type Gaskets	31	Lin. Ft.		
26	30" Reinforced Concrete Pipe, Class III, Rubber Type Gaskets	204	Lin. Ft.		
27	44" x 27" Reinforced Concrete Arch Pipe, Class AIII, Flexible Plastic Gaskets	103	Lin. Ft.		
28	51" x 31" Reinforced Concrete Arch Pipe, Class AIII, Flexible Plastic Gaskets	255	Lin. Ft.		
29	51" x 31" Reinforced Concrete Arch Pipe End Section	1	Each		
30	Castings	790	Lbs		
31	6" Thermoplastic Traffic Stripe, Continuous Yellow	780	Lin. Ft.		

32	Thermoplastic Detail Stripe, White	336	Lin. Ft.		
33	Thermoplastic Legend, White	103	Lin. Ft.		
34	Thermoplastic Legend, White	10	Sq. Ft.		
35	Detectable Warning, Per Plans	141	Sq. Ft.		
36	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness	20	Sq. Ft.		
37	Steel U-Section Posts, 2.0 Lbs/Ft	78	Lin. Ft.		
38	Maintenance of Traffic	1	Lump Sum		
39	Mobilization	1	Lump Sum		
		Subtotal Katie (Roadway)			

Traffic Signal Relocation					
ITEM No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
1	Relocation of Existing Traffic Signal Controller, Per Plans	1	Lump Sum	\$50,000.00	\$50,000.00
2	Removal of Existing Traffic Signal Controller Base	1	Each	\$2,500.00	\$2,500.00
3	Maintenance of Traffic	1	Lump Sum	\$3,000.00	\$3,000.00
4	Mobilization	1	Lump Sum	\$6,000.00	\$6,000.00
		Subtotal Traffic			

Arledge Street (Water)					
ITEM No.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
1	12" Class 350 Ductile Iron Water Line (Open Cut)	670	Lin. Ft.		
2	8" Class 350 Ductile Iron Water Line (Open Cut)	20	Lin. Ft.		
3	6" Class 350 Ductile Iron Water Line (Open Cut)	20	Lin. Ft.		
4	4" Class 350 Ductile Iron Water Line (Open Cut)	10	Lin. Ft.		
5	3" Sch. 80 PVC (Open Cut)	90	Lin. Ft.		
6	2" Sch. 80 PVC (Open Cut)	12	Lin. Ft.		
7	1 1/2" Sch. 80 PVC (Open Cut)	60	Lin. Ft.		
8	20" Steel Casing (Bored)	60	Lin. Ft.		
9	16" DR-11 HDPE (Open Cut)	60	Lin. Ft.		
10	Tracer Wire System	942	Lin. Ft.		
11	8" Gate Valve	1	Each		
12	6" Gate Valve	1	Each		
13	Connection: Proposed 12" to Existing 20" (Hot Tap W/ 12" Valve)	1	Each		
14	Connection: Proposed 12" to Proposed 12" (Tee)	1	Each		
15	Connection: Proposed 12" to Proposed 8" (Tee and Reducer)	1	Each		
16	Connection: Proposed 8" to Proposed 6" (Tee and Reducers)	1	Each		

17	Connection: Proposed 6" to Proposed 4" (Tee)	1	Each		
18	3-Way Fire Hydrant with Appurtenances (Inl. Tee, Valve, Hydrant, Brass Tag, Pipe & Other Fittings)	2	Each		
19	6" Fire Suppression Connection	3	Each		
20	3" Service Tap w/ Valve for Domestic Water (Includes Tap, Valve, Curb Stop, Fittings, Valve Box, Meter, Meter Box Etc.)	4	Each		
21	2" Service Tap w/ Valve for Domestic Water (Includes Tap, Valve, Curb Stop, Fittings, Valve Box, Meter, Meter Box Etc.)	1	Each		
22	1 1/2" Service Tap w/ Valve for Domestic Water (Includes Tap, Valve, Curb Stop, Fittings, Valve Box, Meter, Meter Box Etc.)	2	Each		
			Subtotal Arledge (Water)		

Katie Avenue (Water)					
ITEM No.	DESCRIPTION	QUANTIT Y	UNIT	UNIT PRICE	EXTENSION
1	8" Ductile Iron Water Line (Open Cut)	460	Lin. Ft.		
2	3" Sch. 80 PVC (Open Cut)	41	Lin. Ft.		
3	1 1/2" Sch. 80 PVC (Open Cut)	40	LF		
4	Tracer Wire System	541	Lin. Ft.		
5	Connection: Proposed 8" to Existing 6" (Hot Tap W/8" Valve)	1	Each		

6	3-Way Fire Hydrant with Appurtenances (Incl. Tee, Valve, Hydrant, Brass Tag, Pipe & Other Fittings)	1	Each		
7	6" Fire Suppression Connection	1	Each		
8	3" Service Tap w/ Valve for Domestic Water (Includes Tap, Valve, Curb Stop, Fittings, Valve Box, Meter, Meter Box Etc.)	1	Each		
9	1 1/2" Service Tap w/ Valve for Domestic Water (Includes Tap, Valve, Curb Stop, Fittings, Valve Box, Meter, Meter Box Etc.)	1	Each		
			Subtotal Katie (Water)		

Arledge Street (Sewer)

ITEM No.	DESCRIPTION	QUANTIT Y	UNIT	UNIT PRICE	EXTENSION
1	8" PVC Sewer, SDR 26 (6'-8')	403	Lin. Ft.		
2	8" PVC Sewer, SDR 26 (8'-10')	60	Lin. Ft.		
3	6" PVC Sewer, SDR 26 (All Depths)	144	Lin. Ft.		
4	Tracer Wire System	607	Lin. Ft.		
5	48" Diameter Precast Concrete Manhole (6'-8')	2	Each		
6	60" Diameter Precast Concrete Manhole (8'-10')	1	Each		
7	8"x8"x6" Service Tee	6	Each		
8	6" PVC Cleanout	6	Each		
9	Demolition and Removal of Existing Manhole	1	Each		

10	Abandonment of Existing Manhole	2	Each		
11	Select Fill Material (Class 9, Group C), LVM	766	C.Y.		
			Subtotal Arledge (Sewer)		

Katie Avenue & Edwards Street (Sewer)					
ITEM No.	DESCRIPTION	QUANTIT Y	UNIT	UNIT PRICE	EXTENSION
1	8" PVC Sewer, SDR 26 (8'-10')	149	Lin. Ft.		
2	8" PVC Sewer, SDR 26 (10'-12')	306	Lin. Ft.		
3	6" PVC Sewer, SDR 26 (All Depths)	81	Lin. Ft.		
4	Tracer Wire System	536	Lin. Ft.		
5	48" Diameter Precast Concrete Manhole (10'-12')	1	Each		
6	8"x8"x6" Service Tee	3	Each		
7	6" PVC Cleanout	3	Each		
8	Select Fill Material (Class 9, Group C), LVM	2236	C.Y.		
			Subtotal Katie (Sewer)		

TOTAL, BASE BID: (\$) _____

Base Bid Respectfully Submitted, Name of Firm or Bidder: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS: that we, the under signed,
_____Principal, and _____as Surety, are hereby
held and firmly bound unto _____as Owner in the penal sum of 5%
(Five Percent) for payment of which, well and truly to be made, we hereby jointly and
severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that whereas the Principal has submitted to
a certain BID, attached hereto and hereby made a part hereof to enter into a contract in
writing, for the following project:

INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA HATTIESBURG, MISSISSIPPI

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in
the Form of Contract attached hereto (properly completed in accordance with said BID) and
shall furnish a BOND for his faithful performance of said contract, and for the payment of
all persons performing labor or furnishing materials in connection therewith, and shall in all
other respects perform the agreement created by the acceptance of said BID, then this
obligation shall be void, otherwise the same shall remain in force and effect; it being
expressly understood and agreed that the liability of the Surety for any and all claims
hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said
Surety and its BOND shall be in no way impaired or affected by any extension of the time
within which the OWNER may accept such BID; and said Surety does hereby waive notice
of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year set forth above.

_____(L.S.)
PRINCIPAL

SURETY

BY: _____

IMPORTANT: Surety companies executing BONDS must appear on the Treasure Department's most current line (Circular 570 as amended) and be authorized to transact business in the state where the project is located

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into this ____ day of _____, 20__ by and between _____ hereinafter called the CONTRACTOR, and the CITY OF HATTIESBURG, MISSISSIPPI hereinafter called the OWNER, Witnesseth that the Contractor and the OWNER, for the consideration hereafter named and agrees as follows.

ARTICLE 1: SCOPE OF WORK

The Contractor agrees to furnish all tools, labor, equipment, materials, and supplies required to be furnished, and perform all work required under and in accordance with the plans entitled:

INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA HATTIESBURG, MISSISSIPPI

which are on file at the office of the OWNER, and the Specifications, Proposals, General and Special Conditions, attached hereto and made a part hereof as fully as though copied herein, under the direct supervision and to the entire satisfaction of the OWNER and in accordance with the Laws of the State of Mississippi.

ARTICLE 2: THE CONTRACT SUM

It is further agreed and understood by and between the parties hereunto that the OWNER agrees to pay and the Contractor agrees to accept full and final compensation for all work done under this agreement, the lump sum amount adjusted for variation of quantities at the unit prices named in the Proposal, which is hereto attached, such payment to be made in lawful money of the United States, at the time and in the manner hereinafter set forth.

ARTICLE 3: TIME OF COMPLETION

The Contractor agrees, for the consideration above expressed, to begin and complete the work within the time specified in the Proposal. If the Contractor fails to complete the work in the time specified, he shall pay the OWNER as **LIQUIDATED DAMAGES**, ascertained and agreed, and not in the nature of a penalty, the sum of \$ _____ for each day delayed, which shall be deducted from the final amount to be paid under the contract; provided that the extension of time with the waiver of liquidation damages may be granted as provided for in the Specifications.

ARTICLE 4: PROGRESS PAYMENTS

The owner agrees to make progress payments during the construction as provided herein as follows:

The ENGINEER will on or before the tenth (10th) day of each month make an estimate of the value of the work done, based on contract prices.

The OWNER agrees to pay the CONTRACTOR 100% of the value of the work done each month, less five percent (5%) RETAINAGE until final acceptance of the work has been made).

ARTICLE 5: ACCEPTANCE AND FINAL PAYMENT

Upon receipt of written notice that the work is ready for final acceptance and inspection, the Engineer shall promptly make such inspection, and when he finds the work acceptable under the contract, and the contract fully performed, he shall promptly issue a final certificate, over his own signature, stating that the work provided for in this Contract has been completed and is accepted by him under the terms and conditions thereof. Then, the entire balance shall be due the Contractor within sixty (60) days the date of said final acceptance.

Before issuance of final certificate, the Contractor shall submit evidence satisfactory to the ENGINEER that all payrolls, materials, bills, and other indebtedness connected with the work have been paid.

The making and acceptance of the final payment shall constitute a waiver of all claims by the OWNER, other than those arising from unsettled liens, from faulty work or materials appearing within one (1) year after payment, or claims previously made and still unsettled.

If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer, so certifies, the OWNER shall, upon certificate of the Engineer and without terminating the Contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

ARTICLE 6: THE PERFORMANCE BOND

The Contractor agrees to furnish a bond, with an approved surety thereon guaranteeing the performance of this contract, in no less than one hundred percent (100%) of the amount of the Contract. Said Bond shall be conditioned on full and complete performance of the Contract, and for the payment of all labor and materials for a period of one (1) year

after completion. The Surety on said Bond shall be a surety company of financial resources satisfactory to the OWNER and authorized to do business in the State of Mississippi.

ARTICLE 7: INSURANCE

The Contractor agrees to also carry Public Liability Insurance, Property Damage Insurance, and Workman's Compensation Insurance in amounts as required by the Specifications.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first written above.

OWNERS:

SEAL

City of Hattiesburg, Mississippi

BY _____

Title _____ ATTEST _____

CONTRACTOR:

SEAL

BY _____

Title _____ ATTEST _____

PAYMENT AND PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: THAT WE, the Undersigned (hereinafter called the Principal), a corporation, partnership or individual duly unauthorized by law to do business as a construction contractor in the State of Mississippi, and of (herein called the Surety), a corporation duly authorized to do a surety business under the laws of the State of Mississippi, are held and firmly bound unto City of Hattiesburg, (hereinafter called the Obligee), a _____ Municipality existing under the laws of the State of Mississippi, in the penal sum of _____ Dollars (_____) lawful money of the United States, for the payment of which well and truly to be made, the said Principal and the said Surety do hereby bind ourselves, our heirs, executors, administrators and assigns, jointly and severally, by these presents, as follows:

The Condition of this obligation is such that; whereas Principal by an instrument in writing attached here-to and bearing date of _____ has agreed with said Obligee to do all work necessary and to furnish labor, materials, tools, supplies and services to construct **INFRASTRUCTURE REHABILITATION, ARLEDGE STREET & KATIE AVENUE AREA** as shown on the Plans and specified thereby in the Specifications, Proposal and other Contract Documents hereto attached.

NOW THEREFORE, if said Principal shall well and truly in good, sufficient and workmanlike manner, and to the satisfaction of Obligee perform and complete the work required, and shall defend, indemnify and save harmless said Obligee against all damages, claims, demands, expense and charge of every kind (including claims of patent infringement) arising out of injury or damage to persons or property by reason or arising from any act, omission or neglect of said Principal, his agent, servants or employees with relation to said work; and shall pay all cost, charges, rentals and expenses for labor, material, supplies and equipment and deliver the said improvement to Obligee completed and ready for occupancy or operation, and free from all liens, encumbrances or claims for labor, material or otherwise; and shall pay all other expenses lawfully chargeable to Obligee by reason of any default or neglect of the said Principal in the relation of said agreement and said work, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said surety for value received hereby stipulates and agrees that no charge, extension of time, alteration or addition to the terms of the Contract, or the work to be performed hereunder, or the Specifications accompanying the same, shall in any way affect its obligation on this bond and does hereby waive notice of any change, extension of time, alteration or addition to the terms of the Contract, or to the work, or to the Specifications.

PROVIDED FURTHER, that if Principal, his or its subcontractor or subcontractors fail to duly pay for any labor, materials, team hire, sustenance provisions or any other supplies or materials used or consumed by such Principal or his, their or its subcontractors in performance of the work contracted to be done, the Surety will pay the same in any amount not exceeding the sum specified in the bond, together with interest as provided by law.

IN WITNESS THEREOF: Said Principal and surety have hereunto set their hands and seals at _____ this _____ day of _____, 20__.

(SEAL)

WITNESSES:

TITLE

WITNESSES:

TITLE

PRINCIPAL

ADDRESS

Name of person executing for Principal

TITLE

SURETY

ADDRESS

Name of person executing for Surety

TITLE

GENERAL CONDITIONS

Wherever used in these “General Conditions” or in the other contract documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof:

Acceptance: Acceptance by the owner of the work as being fully complete in accordance with the contract documents.

Agreement: The written agreement between the owner and the contractor covering the work to be performed; the contract documents, which are attached to and made a part of the agreement, also designated as the contract.

Addenda: Written or graphic instruments issued prior to the execution of the agreement, which modify and/or interpret any or all part thereof of the contract documents, drawings and specifications by addition, deletions, clarifications, and/or corrections.

Application for Payment: The form furnished by the engineer, which is to be used by the contractor in requesting progress payments. The “Application for Payment” form is submitted along with an affidavit by the contractor that progress payments theretofore received from the owner on account for completed work have been applied by the contractor to discharge in full all of the contractor’s obligations stated in prior “Application(s) for Payment.”

Approval: Accepts as satisfactory.

Bid: The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the work to be performed.

Bidder: Any person, firm, or corporation submitting a bid for the work.

Bonds: Bid, performance, and payment bonds and other instruments of security furnished by the contractor and contractor’s surety in accordance with the contract documents and in accordance with the law of the place/location of the project.

Change Order: A written order to the contractor signed by the owner authorizing an addition to, deletion of, or revision in the work, or an adjustment in the contract price or the contract time issued after execution of the agreement.

Contract Documents: “Advertisement for Bids; Instructions for Bidders; Contractor’s Bid; Bid Bond; Contract Agreement; General Conditions; Supplemental General Conditions; Technical Specifications; Payment Bond; Performance Bond; Notice of Award; Notice to Proceed; Change Order, and Drawings.”

Contract Price: The total moneys payable to the contractor under the contract documents.

Contract Time: The number of calendar days stated in the agreement for the completion of the work.

Contracting Officer: The individual who is authorized to sign the contract documents on behalf of the owner’s governing body. The contracting officer is also known as the “Owner’s Recipient.”

Contractor: The person, firm, or corporation with whom/which the owner has executed the agreement.

Day: A calendar day of twenty-four hours measured from midnight to the next midnight.

Drawings: The drawings that show the character and scope of the work to be performed that have been prepared or approved by the engineer and are referred to in the contract documents.

Engineer: The person, firm, or corporation named as such in the contract documents.

Field Order: A written order issued by the engineer which clarifies or interprets the contract documents in accordance with herein **Article 9**, paragraph 9.3 or orders minor changes in the work in accordance with herein **Article 10**, paragraph 10.2.

He, His, and Him: These are general pronouns that shall represent both male and female genders.

Modification: (a) A written amendment of the contract documents signed by both parties, (b) a change order, (c) a written clarification or interpretation issued by the engineer in accordance with herein **Article 9**, paragraph 9.3, or (d) a written order for a minor change or alteration in the work issued by the engineer pursuant to herein **Article 10**, paragraph 10.2. A modification may only be issued after execution of the agreement.

Notice of Award: The written notice by owner to the apparent successful bidder stating that upon compliance with the conditions precedent to be fulfilled by the bidder within the time specified, owner will execute and deliver the agreement to him.

Notice to Proceed: A written notice given by owner to contractor (with a copy to engineer) fixing the date on which the contract time will commence to run and on which the contractor shall start to perform said contractor's obligations under the contract documents.

Owner: A public body or authority, corporation, association, partnership, or individual for which/whom the work is to be performed.

Project: The entire construction to be performed as provided in the contract documents.

Resident Project Representative: An authorized representative of the engineer assigned to observe the work performed and materials furnished by the contractor or such other person as may be appointed by the owner as his representative. The contractor shall be notified in writing of the identity of this representative.

Shop Drawings: All drawings, diagrams, illustrations, brochures, schedules, and other data that are prepared by the contractor, a subcontractor, manufacturer, supplier, or distributor and which illustrate the equipment, material, or some portion of the work and as required by the contract documents.

Samples: Physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.

Specifications: Those portions of the contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work.

Subcontractor: An individual, firm or corporation having a direct contract with contractor or with any other subcontractor for the performance of a part of the work at the site.

Substantial Completion: Substantial completion may be granted for all or portions of the work prior to final completion and stopping of contract time. Substantial completion is defined as the date when the construction is sufficiently completed in accordance with the contract documents so that the project or specified part of the project can be utilized for the purpose for which it was intended. The contract provides that the retainer may be reduced for that portion of the work for which substantial completion is granted, but the granting of substantial completion will not stop contract time or liquidated damages.

Supplemental General Conditions: Certain conditions of this contract required by the State of Mississippi, Department of Environmental Quality and by federal laws, executive orders, and regulations on projects funded by the state revolving fund loan program.

Supplier: An individual who and/or firm, corporation, or other organization that supplies materials or equipment for the work - including that which is fabricated to a special design, but does not perform labor at the site.

Special Conditions: Special conditions refer only to the work under this contract when included as a part of the contract documents.

Surety: The corporate body which is bound with the contractor and which engages to be responsible for the contractor and his acceptable performance of the work.

Work: Any and all obligations, duties, and responsibilities necessary to the successful completion of the project assigned to or undertaken by contractor under the contract documents, including all labor, materials, equipment and other incidentals, and the furnishing thereof.

Written Notice: The term "Notice" or "notice" as used herein shall mean and include all written notices, demands, instructions, claims, approvals, and disapprovals required to obtain compliance with contract requirements. Written "Notice" shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or to an authorized representative of such individual, firm or corporation, or if delivered at or sent by registered mail to the last business address known to him who gives the "Notice." Unless otherwise stated in writing, any "Notice" to or demand upon the owner under this contract shall be delivered to the owner through the engineer.

ARTICLE 2

PRELIMINARY MATTERS

2.1 Award

The award of the contract, if it is awarded, will be to the lowest responsive, responsible bidder. No "Notice of Award" will be given until the owner has concluded such investigations as he deems necessary to establish the responsibility, qualifications, and financial ability of the bidders to do the work in accordance with the contract documents to the satisfaction of the owner within the time prescribed. The owner reserves the right to reject the bid of any bidder who does not pass such investigation to the owner's satisfaction. In analyzing bids, the owner may take into consideration alternates and unit prices, if requested by the bid forms. If the contract is awarded, the owner will issue the "Notice of Award" and give the successful bidder a contract for execution within sixty (60) days after the opening of bids.

2.2 Execution of Agreement

At least three counterparts of the agreement and such other contract documents will be executed and delivered by the contractor to the owner within ten (10) calendar days of receipt from the owner.

2.3 Forfeiture of Bid Security

Failure of the successful bidder to execute and deliver the agreement and deliver the required bonds as stipulated herein in **Article 2**, paragraph 2.2 shall be just cause for the owner to annul the "Notice of Award" and declare the bid and any security therefore forfeited.

2.4 Contractor's Pre-Start Representations

Contractor represents that he has familiarized himself with, and assumes full responsibility for having familiarized himself with, the nature and extent of the contract documents, work, locality, and with all local conditions and federal, state, and local laws, ordinances, rules, and regulations that may in any manner affect performance of the work, and represents that he has correlated his study and observations with the requirements of the contract documents. Contractor also represents that he has studied all surveys and investigation reports of subsurface and latent physical conditions referred to in the specifications and made such additional surveys and investigations as he deems necessary for the performance of the work at the contract price in accordance with the requirements of the contract documents and that he has correlated the results of all such data with the requirements of the contract documents.

2.5 Commencement of Contract Time

The contract time will commence to run no more than fifteen (15) days after issuance of the "Notice to Proceed."

2.6 Starting the Project

Contractor shall start to perform his obligations under the contract documents on the date when the contract time commences to run. No work shall be done at the site prior to the date on which the contract time commences to run, except with the written consent of the owner.

2.7 Before Starting Construction

Before undertaking each part of the work, the contractor shall carefully study and compare the contract documents and check and verify pertinent figures shown thereon and all applicable field measurements. The contractor shall at once report in writing to the engineer any conflict, error or discrepancy which he may discover; however, the contractor shall not be liable to the owner or engineer for contractor's failure to discover any conflict, error, or discrepancy in the drawings or specifications.

2.8 Schedule of Completion

Within ten (10) days after delivery of the “Notice to Proceed” by the owner to the contractor, the contractor shall submit to the engineer an estimated progress schedule with earnings indicating the starting and completion dates of the various stages of the work and a preliminary schedule of shop drawing submissions. (See herein **Article 6**, paragraphs 6.22 through 6.26.) The engineer shall review and return said progress schedule or require revisions thereto within fourteen (14) days of its submittal. The responsibility for coordinating the work of all contractors shall be as provided in the special conditions if there is more than one contractor involved in a project.

2.9 Preconstruction Conference

Prior to starting the work at the site, a preconstruction conference will be held to review the above-mentioned schedules to establish procedures for handling shop drawings and other submissions, for processing applications for payment, and to establish a working understanding between the parties as to the project. Present at the conference will be the owner or owner’s representative, the engineer, resident project representatives, contractor, and contractor’s superintendent.

2.10 Qualification of Subcontractors, Material-Men, and Suppliers

Within ten (10) working days after bid opening, the contractor will (if required) submit to the owner and the engineer for acceptance a list of the names of subcontractors and such other persons and organizations (including those who are to furnish principal items of materials or equipment) proposed for those portions of the work to which the identity of the subcontractors and other persons and organizations must be submitted as specified in the contract documents.

Within thirty (30) working days after receiving said list, the engineer will notify the contractor in writing if either the owner or the engineer, after due investigation, has reasonable objection to any subcontractor, person, or organization on said list. The failure of the owner or the engineer to make objection to any subcontractor, person, or organization on said list within thirty (30) days of receipt shall constitute an acceptance of such subcontractor, person, or organization. Acceptance of any such subcontractor, person, or organization shall not constitute a waiver of any right of the owner or the engineer to reject defective work, material, or equipment, or any work, material, or equipment not in conformance with the requirements of the contract documents.

ARTICLE 3

CORRELATION, INTERPRETATION and INTENT of CONTRACT DOCUMENTS

3.1 Intent

It is the intent of the specifications and drawings to describe a complete project to be constructed in accordance with the contract documents. The contract documents

comprise the entire agreement between the owner and the contractor. The contract documents may be altered only by a modification.

3.2 Binding of Contract Documents

The contract documents are complementary; what is called for by one is as binding as if called for by all. If the contractor finds a conflict, error, or discrepancy in the contract documents, contractor shall call it to the engineer's attention in writing at once and before proceeding with the work affected thereby; however, contractor shall not be liable to owner or engineer for contractor's failure to discover any conflict, error, or discrepancy in the specifications or drawings. The various contract documents shall be given precedence, in case of conflict, error, or discrepancy, as follows: supplemental general conditions; agreement modifications; addenda; special conditions; information to bidders; general conditions; technical specifications, and drawings. If the requirements of other contract documents are more stringent than of the supplemental general conditions, the more stringent requirements shall apply.

3.3 Similar Words Interpretation

The words "furnish," "Required," "furnish and install," "install," and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install-- complete in place and ready for service."

3.4 Miscellaneous Items and Accessories

Miscellaneous items and accessories that are not specifically mentioned that are essential to produce a complete and properly operating installation or usable structure or plant providing the indicated function shall be furnished and installed without change in the contract price. Such miscellaneous items and accessories shall be of the same quality standards, including material, style, finish, strength, class, weight, and other applicable characteristics as specified for the major component of which the miscellaneous item or accessory is an essential part and shall be approved by the engineer before installation. The above requirement is not intended to include major components not covered by or inferable from the drawings and specifications.

3.5 Coordination of Work

The work of all trades under this contract shall be coordinated by the contractor in such a manner as to obtain the best workmanship possible for the entire project, and all components of the work shall be installed or erected in accordance with the best practices of the particular trade.

3.6 Manufacturer's Literature and Agency/Organization Codes

Manufacturer's literature, when referenced, shall be dated and numbered and is intended to establish the minimum requirements acceptable. Whenever reference is given to codes, standard specifications, or other data published by regulating agencies or accepted organizations, including but not limited to, national electrical code,

applicable state building code, federal specifications, ASTM Specifications, various institute specifications, and the like, it shall be understood that such reference is to the latest edition including addenda in effect on the date of bid.

3.7 Brand Names

Brand names, where used in the technical specifications, are intended to denote the standard of quality required for the particular material or product. The term "equal" or "equivalent" when used in connection with brand names shall be interpreted to mean a material or product that is similar and equal in type, quality, size, capacity, composition, finish, color, and other applicable characteristics to the material or product specified by trade name and that is suitable for the same use and capable of performing the same function in the opinion of the engineer as the material or product so specified. It shall be understood by all bidders that "or equal" products may be used for all brands specified unless specifically noted otherwise. Proposed equivalent items must be approved by the engineer before they are purchased or incorporated in the work. (When a brand name, catalog number, model number, or other identification is used without the phrase "or equal," the contractor shall assume the phrase "or equal.")

ARTICLE 4

AVAILABILITY OF LANDS; SUBSURFACE CONDITIONS; REFERENCE POINTS

4.1 Availability of Lands

The owner will furnish, as indicated in the contract documents, the lands upon which the work is to be done, rights-of-way for access thereto, and such other lands which are designated for the use of the contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the owner unless otherwise specified in the contract documents. Other access to such lands or rights-of-way for the contractor's convenience shall be the responsibility of the contractor. The contractor will provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Surveys and Test

The owner will, upon request, furnish to the bidder(s) copies of all available boundary surveys and subsurface tests at no cost.

4.3 Subsurface Conditions

The contractor acknowledges that he has investigated conditions prior to bidding and is satisfied with said conditions affecting the work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of

labor, water, electric power, roads, and uncertainties of weather, river stages, tides, water tables or similar physical conditions at the site, the conformation and conditions of the ground, and the character of equipment and facilities needed preliminary to and during prosecution of the work. The contractor further acknowledges that he has satisfied himself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done on behalf of the owner on the site or any contiguous site, as well as from information presented by the drawings and specifications made a part of this contract, or any other information made available to said contractor prior to receipt of bids. Any failure by the contractor to acquaint himself with the available information will not relieve said contractor from responsibility for estimating properly the difficulty or cost of successfully performing the work. The owner assumes no responsibility for any conclusions or interpretations made by the contractor on the basis of the information made available by the owner.

4.4 Differing Site Conditions

4.4.1 The contractor shall promptly, and before such conditions are disturbed, notify the owner in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in this contract, or (2) unknown physical conditions at the site and/or of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this contract. The owner shall promptly investigate the conditions, and if he finds that such conditions do materially so differ and cause an increase or decrease in the contractor's cost of, or the time required for, performance of any part of the work under this contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the contract modified in writing accordingly.

4.4.2 No claim of the contractor under this clause shall be allowed unless the contractor has given the notice required in (a) above; provided, however, the time prescribed thereof may be extended by the owner.

4.4.3 No claim by the contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

ARTICLE 5

BONDS AND INSURANCE

5.1 Performance and Payment Bonds

The contractor's attention is directed to the instructions for bidders, the performance bond, and the payment bond as contained in the contract documents.

5.2 Contractor's Liability Insurance

The contractor shall provide the owner with insurance certificates certifying that all required liability insurance is in force, and such insurance certificates shall include provisions that the insurance shall not be canceled, allowed to expire, or be materially changed without giving the owner advance notice by registered mail.

5.3 Sublet Work

The contractor agrees that if any part of the work under the contract is sublet, he will require the subcontractor(s) to carry insurance as required, and that the contractor will require the subcontractor(s) to furnish to contractor insurance certificates similar to those required by the owner in above listed paragraph 5.2 (a).

5.4 Owner's Liability Insurance

The owner will be responsible for purchasing and maintaining owner's own liability insurance and, at his option, may purchase and maintain such insurance as will protect him against claims which may arise from operations under the contract documents.

5.5 Fire and Extended Coverage Insurance (Builders' Risk)

The contractor shall maintain, as applicable, with an insurance company or insurance companies acceptable to the owner, fire, extended coverage, and vandalism and malicious mischief insurance on buildings and structures while in the course of construction including foundations, additions, attachments and all permanent fixtures belonging to and constituting a part of said buildings or structures. The policy or policies shall also cover machinery if the cost of machinery is included in the contract. The amount of insurance must be at all times at least equal to the actual cash value of the insured property. The policy shall be in the name of the owner and the contractor, as their interests may appear, and shall also cover the interests of all subcontractors performing work.

5.6 Flood Insurance

The contractor shall maintain, as applicable, with an insurance company or insurance companies acceptable to the owner, any flood insurance made available under the US National Flood Insurance Act of 1968, as amended. This requirement applies only to insurable improvements with a value in excess of ten thousand dollars (\$10,000.00 USD) located inside the boundaries of a special flood hazard area delineated on a flood hazard boundary map or flood insurance rate map which has been issued by the Department of Housing and Urban Development and the Federal Insurance Administration. The insurance shall be in an amount at least equal to the total eligible project costs located within the flood hazard area, or to the maximum limit of coverage made available under the National Flood Insurance Act of 1968, as amended, whichever is less, for the entire life of the contract.

5.7 Evidence of Insurance

The contractor shall provide the owner with satisfactory evidence certifying that the foregoing insurance is in force, and such evidence shall include provisions that the insurance shall not be canceled, allowed to expire, or be materially changed without giving the owner advance notice by registered mail.

5.8 Cancellation and Re-Insurance

If any insurance should be canceled or changed by the insurance company or should any insurance expire during the period of this contract, the contractor shall be responsible for securing other acceptable insurance to provide the coverage specified in this section to maintain continuous coverage during the life of this contract.

ARTICLE 6

CONTRACTOR'S RESPONSIBILITIES

6.1 Supervision and Superintendence

The contractor will supervise and direct the work. The contractor will be solely responsible for the means, methods, techniques, sequences, and procedures of construction. The contractor will employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the contractor as the contractor's representative at the site. The supervisor shall have full authority to act on behalf of the contractor, and all communications given to the supervisor shall be as binding as if given to the contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work. (Copies of written communications given to the superintendent shall be mailed to the contractor's home office).

6.2 Labor, Materials, and Equipment

The contractor will provide competent, suitable, qualified personnel to survey and lay-out the work and perform construction as required by the contract documents. Contractor will at all times maintain good discipline and order at the site.

6.3 Contractor to Furnish

The contractor will furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, local telephone, water, sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation, and completion of the work.

6.4 Condition of Materials and Equipment

All materials and equipment will be new except as otherwise provided in the contract documents. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or approved, such materials shall be delivered to the site in their original packages or container with seals unbroken and labels intact.

6.5 Materials and Equipment Specifications

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, or processors, except as otherwise provided in the contract documents.

6.6 Materials, Equipment, Products, and Substitutions

6.6.1 Materials, equipment, and products incorporated in the work must be approved for use before being purchased by the contractor. The contractor shall submit to the engineer a list of proposed materials, equipment, or products, together with such samples as may be necessary for contractor to determine said materials, equipment or products acceptability and obtain engineer's approval within ninety (90) calendar days after award of contract unless otherwise stipulated in the special conditions. No request for payment for "or equal" equipment will be approved until this list has been received and approved by the engineer.

6.6.2 Whenever a material, article, or piece of equipment is identified on the drawings or specifications by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance of other salient requirements and that other products of equal capacities, quality, and function shall be considered. The contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the contract documents by reference to brand name or catalogue number, and if, in the opinion of the engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the engineer may approve its substitution and use by the contractor. Incidental changes or extra component parts required to accommodate the substitute will be made by the contractor without a change in the contract price or contract time.

6.6.3 No substitute shall be ordered or installed without the written approval of the engineer, who shall be the judge of equality.

6.6.4 Delay caused by obtaining approvals for substitute materials will not be considered justifiable grounds for an extension of construction time.

6.6.5 Should any work or materials, equipment, or products not conform to requirements of the drawings and specifications or become damaged during the progress of the work, such work or materials shall be removed and replaced together with any work disarranged by such alterations at any time before completion and acceptance of the project. All such work shall be done at the expense of the contractor. (See herein **Article 7**, paragraph 7.10.)

6.6.6 No materials or supplies for the work shall be purchased by the contractor or by a subcontractor subject to any chattel mortgage or under a conditional sale or

other agreement by which an interest is retained by the seller. The contractor warrants that he has good title to all materials and supplies used by him in the work.

6.7 Concerning Subcontractors

The contractor will not employ any subcontractor, other person, or organization of the types referred to in herein **Article 2**, paragraph 2.10 (whether initially or as a substitute) against whom the owner or the engineer may have reasonable objection, nor will the contractor be required to employ any subcontractor against whom contractor has reasonable objection. The contractor will not make any substitution for any subcontractor who has been accepted by the owner and the engineer unless the engineer determines there is good cause for doing so.

6.8 Contractor's Responsibility for (Direct and Indirect) Personnel

The contractor shall be fully responsible for all acts and omissions of his subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that contractor is responsible for the acts and omissions of persons directly employed by him. Nothing in the contract documents shall create any contractual relationship between owner or engineer and any subcontractor or other person or organization having a direct contract with contractor, nor shall it create any obligation on the part of owner or engineer to pay or to see to the payment of any moneys due any subcontractor or other person or organization, except as may otherwise be required by law. Owner or engineer may furnish to any subcontractor or other person or organization, to the extent practicable, evidence of amounts paid to contractor on account of specific work done in accordance with the schedule of values.

6.9 Drawings Disassociation of Work Delegation

The divisions and sections of the specifications and the identifications of any drawings shall not control the contractor in dividing the work among subcontractors or delineating the work to be performed by any specific trade.

6.10 Binding Subcontractors to Contract

The contractor agrees to bind specifically every subcontractor to the applicable terms and conditions of the contract documents for the benefit of the owner.

6.11 Contractor and Subcontractor Agreement

All work performed for the contractor by a subcontractor shall be pursuant to an appropriate agreement between the contractor and the subcontractor.

6.12 Contractor's Responsibility When Delegating Work

6.12.1 The contractor shall be responsible for the coordination of the trades, subcontractors, and material-men engaged upon contractor's work.

6.12.2 The contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the contractor by the terms of these general conditions and other contract documents insofar as applicable to the work of subcontractors and to give the contractor the same power as regards to terminating any subcontract that the owner may exercise over the contractor under any provisions of the contract documents.

6.12.3 The owner or engineer will not undertake to settle any differences between the contractor and his subcontractors or between subcontractors.

6.12.4 The subcontractor shall be replaced if and when directed in writing if, in the opinion of the engineer, any subcontractor on the project proves to be incompetent or otherwise unsatisfactory.

6.13 Patent Fees and Royalties

The contractor will pay all license fees and royalties and assume all costs incident to the use of any invention, design, process, or device that is the subject of patent rights or copyrights held by others. He will indemnify and hold harmless the owner and the engineer and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorney's fees) arising out of any infringement of such rights during or after completion of the work, and shall defend all such claims in connection with any alleged infringement of such rights.

6.14 Patent Rights and Royalties

The contractor shall be responsible for determining the application of patent rights and royalties on materials, appliances, articles, and/or systems prior to bidding. However, he shall not be responsible for such determination on systems that do not involve purchase by him of materials, appliances, and articles.

6.15 Permits

The contractor will secure and pay for all construction permits and licenses and will pay all governmental charges and inspection fees necessary that are applicable at the time of his bid for the prosecution of the work. There will be no charges to the contractor when such charges are normally made by the owner and when so stated in the special conditions. The owner shall assist the contractor, when necessary, in obtaining such permits and licenses. The contractor will also pay all public utility charges.

6.16 Laws and Regulations

The contractor will give all notices and comply with all laws, ordinances, rules, and regulations applicable to the work. If the contractor observes that the specifications or drawings are at variance therewith, he will give the engineer prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If

the contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the engineer, he will bear all costs arising therefrom; however, it shall not be his primary responsibility to make certain that the drawings and specifications are in accordance with such laws, ordinances, rules, and regulations.

6.17 Taxes

Cost of all sales and other taxes for which the contractor is liable under the terms of the contract shall be included in the contract price stated by the contractor.

6.18 Record Drawings

The contractor will keep one record copy of all specifications, drawings, addenda, modifications, and shop drawings at the site in good order and annotated to show all changes made during the construction process. These complete drawings shall be available to the engineer and shall be delivered to him for the owner upon completion of the project. It shall be used for this purpose only.

6.19 Safety and Protection

The contractor will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. The contractor will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury, or loss to

6.19.1 all employees on the work job and other persons who may be affected thereby;

6.19.2 all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

6.19.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

6.20 Preventative Measures

The contractor will designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the contractor's superintendent unless otherwise designated in writing by the contractor to the owner.

6.21 Emergencies

In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the contractor, without special instruction or authorization from the engineer or owner, is obligated to act at his discretion to prevent threatened damage, injury, or loss. He will give the engineer prompt written notice of any significant changes in the work or deviations from the contract documents caused thereby, and a change order shall thereupon be issued covering the changes and deviations involved. If the

contractor believes that additional work done by him in an emergency which arose from causes beyond his control entitles him to an increase in the contract price or an extension of the contract time, he may make a claim therefore as provided herein in **Articles 11 and 12.**

6.22 Shop Drawings and Samples

After checking and verifying all field measurements, the contractor will submit to the engineer for review copies (or at the engineer's option, one reproducible copy) of all shop drawings in accordance with the accepted schedule of shop drawing submissions (see herein **Article 2**, paragraph 2.8), which shall have been checked by and stamped with the approval of the contractor. The data shown on the shop drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable the engineer to review the information as required.

6.23 Submittal of Samples

The contractor will also submit to the engineer for review, with such promptness as to cause no delay in work, all samples required by the contract documents. All samples will have been checked by and stamped with the approval of the contractor, identified clearly as to material, manufacturer and pertinent catalog numbers, and the use for which intended.

6.24 Drawing or Sample Deviations from Contract

At the time of each submission, the contractor will, in writing, bring to the engineer's attention any deviations that the shop drawings or sample may have from the requirements of the contract documents.

6.25 Engineer's Review of Submitted Drawings and Samples

The engineer will review with reasonable promptness shop drawings and samples, but his review shall be only for conformance with the design concept of the project and for compliance with the information given in the contract documents. The review of a separate item as such will not indicate review of the assembly in which the item functions. The contractor will make any corrections required by the engineer and will return the required number of corrected copies of shop drawings and resubmit new samples until the review is satisfactory to the engineer. The contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections called for by the engineer on previous submissions. The contractor's stamp of approval on any shop drawing or sample shall constitute a representation to the owner and the engineer that the contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalogue numbers and similar data, or he assumes full responsibility for doing so and that he has reviewed or coordinated each shop drawing or sample with the requirements of the work and the contract documents.

6.26 Commencement of Work of Submission(s)

No work requiring a shop drawing or sample submission shall be commenced until the submission has been reviewed and approved by the engineer. A copy of each shop drawing and each approved sample shall be kept in good order by the contractor at the site and shall be available to the engineer.

6.27 Contractor's Responsibility of Submission(s)

The engineer's review of shop drawings or samples shall neither relieve the contractor from his responsibility for any deviations from the requirements of the contract documents unless the contractor has, in writing, called the engineer's attention to such deviation at the time of submission and the engineer has given written approval to the specific deviation, nor shall any review by the engineer relieve the contractor from responsibility for errors or omissions in the shop drawings.

6.28 Site Clean-Up

The contractor shall clean up behind the work as much as is reasonably possible as the work progresses. Upon completion of the work, and before acceptance of and final payment for the project by the owner, the contractor shall remove all his surplus and discarded materials, excavated material, and rubbish from the roadways, sidewalks, parking areas, lawns, and all adjacent property; shall clean his portion of work involved in any building under this contract so that no further cleaning by the owner is necessary prior to his occupancy; shall restore all property, both public and private, that has been disturbed or damaged during the prosecution of the work, and shall leave the whole in a neat and presentable condition.

6.29 Building Clean-Up

Clean-up operations shall consistently be carried on by the contractor at all times to keep the premises free from accumulation of waste materials and rubbish. Upon completion of the work he shall remove all rubbish, tools, scaffolding, surplus materials, etc., from the building and shall leave his work "broom clean," or its equivalent, unless more exactly specified elsewhere in the contract. The general contractor shall do the following special cleaning for all trades upon completion of the work:

6.29.1 remove putty stains and paint from and wash and polish all glass. Do not scratch or otherwise damage glass.

6.29.2 remove all marks, stains, fingerprints and other soil and dirt from painted, stained, and decorated work.

6.29.3 remove all temporary protections and clean and polish floors.

6.29.4 clean and polish all hardware for all trades; this shall include removal of all stains, dust, dirt, paint, etc.

6.30 General Clean-Up

In case of dispute, the owner may remove the rubbish and charge the cost to the several contractors as the engineer shall determine to be just.

6.31 Public Convenience and Safety

The contractor shall, at all times, conduct the work in such a manner as to insure the least practicable obstruction to public travel. The convenience of the general public and of the residents along and adjacent to the area of the work shall be provided for in a satisfactory manner consistent with the operation and local conditions. "Street Closed" signs shall be placed immediately adjacent to the work in a conspicuous position at such locations as traffic demands. At any time that streets are required to be closed, the contractor shall notify law enforcement agencies, fire departments, and parties operating emergency vehicles before the street is closed and again as soon as it is opened. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times.

6.32 Sanitary Provisions

The general contractor shall furnish necessary toilet conveniences secluded from public observation for use of all personnel on the work site, whether or not in his employ. They shall be kept in a clean and sanitary condition and shall comply with the requirements and regulations of the public authorities having jurisdiction. The general contractor shall commit no public nuisance. Temporary sanitary facilities shall be removed upon completion of the work and the premises shall be left clean.

6.33 Indemnification

The contractor will indemnify and hold harmless the owner and the engineer and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of work, provided that any such claim, damage, loss or expense is (a) attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than work itself) including the loss of use resulting therefrom, and (b) caused in whole or in part by any negligent act or omission of the contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

6.34 Claims Against Owner or Engineer

In any and all claims against the owner or the engineer or any of their agents or employees, by an employee of the contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under herein **Article 6**, paragraph 6.33 shall not be limited in any way by any limitation on the amount or type of damages, compensation

or benefits payable by or for the contractor or any subcontractor under workmen's compensation acts, disability benefit acts, or other employees benefit acts.

6.35 Contractor's Liability Obligations

The obligations of the contractor under herein **Article 6**, paragraph 6.34 shall not extend to the liability of the engineer's negligent acts, errors, or omissions or those of his employees or agents.

6.36 Responsibility for Connecting to Existing Work

It shall be the express responsibility of the contractor to connect his work to each part of the existing work or work previously installed as required by the drawings and specifications to provide a complete installation.

6.37 Work in Street, Highway, and Other Rights-of-Way

Excavation, grading, fill, storm drainage, paving, and any other construction or installations in rights-of-way of streets, highways, public carrier lines, utility lines (either aerial, surface or subsurface), etc., shall be done in accordance with requirements of federal, state, and local laws. The owner will be responsible for obtaining all permits necessary for the work. Upon completion of the work, contractor shall present to engineer certificates, in triplicate, from the proper authorities stating that the work has been done in accordance with their requirements.

6.37.1 The owner will cooperate with the contractor in obtaining action from any utilities or public authorities involved in the above requirements.

6.37.2 The engineer shall be responsible for obtaining elevations of curbs and gutters, pavements, storm drainage structures, and other such items as soon as grading operations are begun on the site and, in any case, sufficiently early in the construction period to prevent any adverse effect on the project.

6.37.3 Any variation from the requirements of paragraph 6.37.2 above shall be stated in the "Special Conditions."

6.38 Cooperation with Governmental Departments, Public Utilities, Etc.

The contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies, and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, telephone, and telegraph facilities such as pavements, tracks, piping, wires, cables, conduits, poles, guys, etc., including incidental structures connected therewith that are encountered in the work so that such items may be properly shored, supported, and protected, or the contractor may relocate them if he so desires. The contractor shall give all proper notices, shall comply with requirements of such parties in the performance of his work, shall permit entrance of such parties on the project in order that they may perform their necessary work, and shall pay all charges and fees made by such parties for this work.

6.38.1 The contractor's attention is called to the fact that there may be delays on the project due to work to be done by governmental departments, public utilities, and others in repairing or moving poles, conduits, etc. The contractor shall cooperate with the above parties in every way possible so that the construction can be completed in the least possible time.

6.38.2 The contractor shall have made himself familiar with all codes, laws, ordinances, and regulations that in any manner affect those engaged or employed in the work, or materials and equipment used in or upon the work, or in any way affect the conduct of the work, and no plea of misunderstanding will be considered on account of his ignorance thereof.

6.39 Use of Premises

The contractor shall confine his apparatus, storage of materials, and operations of his workmen to limits indicated by law, ordinances, permits, and directions of engineer and owner, and shall not unnecessarily encumber any part of the site.

6.39.1 Contractor shall not overload or permit any part of any structure to be loaded with such weight as will endanger its safety, nor shall he subject any part of the work to stresses or pressures that will endanger it.

6.39.2 Contractor shall enforce owner's instructions in connection with signs, advertisements, fires, and smoking.

6.39.3 Contractor shall arrange and cooperate with owner in routing and parking of automobiles of his employees, subcontractors and other personnel, and in routing material delivery trucks and other vehicles to the project site.

6.40 Protection of Existing Property Improvements

Any existing surface or subsurface improvements, such as pavements, curbs, sidewalks, pipes or utilities, footings or structures (including portions thereof), and/or trees and shrubbery not indicated on the drawings or noted in the specifications as being removed or altered shall be protected from damage during construction of the project. Any such improvements damaged during construction of the project shall be restored to a condition equal to that existing at time of award of contract.

6.41 Temporary Heat

The general contractor shall provide heat, fuel, and services as necessary to protect all work and materials within all habitable areas of permanent building construction for all contracts against injury from dampness and cold until final acceptance of all work and materials for the project --unless building is fully occupied by the owner prior to such acceptance in which case the owner shall assume all expenses of heating from date of

full occupancy. In areas outside those covered above, each prime contractor shall be responsible for providing such temporary heat, fuel, and services as required to protect his work or shall make all necessary arrangements with the general contractor for providing such temporary heat, fuel, and services. Unless otherwise specifically permitted by stated special conditions, the permanent heating system shall not be used to provide temporary heat. Contractor's proposed methods of heating shall be submitted for approval.

ARTICLE 7

WORK BY OTHERS

7.1 Additional Related Work

The owner may perform additional work related to the project by himself, or he may let other direct contracts thereof that shall contain general conditions similar to these herein. The contractor will afford the other contractors who are parties to such direct contracts (or the owner, if he is performing the additional work himself) reasonable opportunity for the introduction and storage of materials and equipment and the execution of work and shall properly connect and coordinate his work with theirs.

7.2 Report of Defects or Deficiencies

If any part of the contractor's work depends on proper execution or results upon the work of any such other contractor (or the owner), the contractor will promptly report to the engineer in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results.

7.3 Altering the Work of Others

The contractor will do all cutting, fitting, and patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by such other work. The contractor will not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the engineer and of the other contractors whose work will be affected.

7.4 Prior Written Notice of Additional Work

If the performance of additional work by other contractors or the owner is not noted in the contract documents prior to the execution of the contract, written notice thereof shall be given to the contractor prior to starting any such additional work. If the contractor believes that the performance of such additional work by the owner or others involves him in additional expense or entitles him to an extension of the contract time, he may make a claim as provided herein in **Articles 11 and 12**.

7.5 Contractor's Allowance for Work of Others

Where practicable, the general contractor shall build around the work of other separate contractors or shall leave chases, slots, and holes as required to receive and to conceal

within the general construction work the work of such other separate contractors as directed by them. Where such chases, slots, etc., are impracticable, the work shall require specific approval of the engineer.

7.6 Necessary Alterations Not Built by General Contractor

Necessary chases, slots, and holes not built or left by the general contractor shall be cut by the separate contractor requiring such alterations after approval of the general contractor. The general contractor shall do all patching and finishing of his work where cut by other contractors at the expense of such other contractors.

7.7 Contractors Sharing of the Work Site

Cooperation is required in the use of site facilities and in the detailed execution of the work. Each contractor shall coordinate his operations with those of the other contractors for the best interest of the work in order to prevent delay in the execution thereof.

7.8 Monitoring Contractors Work

Each contractor shall keep himself informed of the progress of the work of other contractors. Should lack of progress or defective workmanship on the part of other contractors interfere with his operations, the contractor shall notify the engineer immediately. Lack of such notice to the engineer will be construed as acceptance by the contractor for proper coordination of his own work.

7.9 Contractor's Progress of Work Notice(s)

Each contractor shall give notice(s) of the progress of his work so as to allow other contractors adequate opportunity to properly direct and coordinate their work. The general contractor shall give notice(s) of the progress of his work so that work of other contractors, when required to be concealed, may be placed before the general construction work. All such notices shall be submitted (a) to the engineer with copies to other prime contractors on the project, and (b) sufficiently ahead of job progress to permit adequate time for the other prime contractors to coordinate their work.

7.10 Notice Negligence and Other Liability

The cost of extra work resulting from lack of notices, untimely notices, and failure to respond to notices, defective work, or lack of coordination shall be borne by the contractor responsible for such lack of notices, etc.

ARTICLE 8

OWNER'S RESPONSIBILITIES

8.1 Communication

The owner will issue all communications to the contractor through the engineer.

8.2 Engineer's Termination

In case of termination of the employment of the engineer, the owner will appoint an engineer against whom the contractor makes no reasonable objection and whose status under the contract documents shall be that of the former engineer. Any dispute in connection with such appointment shall be subject to arbitration, if mutually agreeable.

8.3 Prompt Payments to Contractor

The owner will promptly furnish the data required of him under the contract documents and shall promptly make payments to the contractor after they are due as provided herein in **Article 14**.

8.4 Owner's Duties

Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth herein in **Article 4**. **Article 4**, paragraph 4.2 refers to the owner identifying and making available to contractor copies of surveys and investigation reports of subsurface and latent physical conditions at the site or otherwise affecting performance of the work, which has been relied upon by the engineer in preparing the drawings and specifications.

8.5 Owner's Liability Responsibilities

The owner's responsibilities in respect of liability and property insurance are set forth herein in **Article 5**, paragraph 5.4.

8.6 Owner's Right to Request Changes

In addition to owner's rights to request changes in the work in accordance with herein **Article 10**, the owner (especially in certain instances as provided in **Article 10**, paragraph 10.4) will be obligated to execute change orders.

8.7 Owner's Right to Stop or Suspend Work

In connection with the owner's right to stop or suspend work, see herein **Article 15**, paragraph 15.1. **Article 15**, paragraph 15.3 deals with the owner's right to terminate services of the contractor under certain circumstances.

8.8 Owner's Use of Completed or Partially Completed Work

The owner shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding the fact that the time for completing the entire work or any portion thereof may not have expired, but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the contract documents. If such prior use increases the cost of or delays the work, the contractor shall be entitled to such extra compensation or extension of time or both, except by prior agreement as the engineer may determine.

8.9 Other Owner's Responsibility

Owner's responsibility in respect of certain inspections, tests, and approvals is set forth herein in **Article 9**.

ARTICLE 9

ENGINEER'S STATUS DURING CONSTRUCTION

9.1 Owner's Representative

The engineer shall be the owner's representative during the construction period. The duties and responsibilities and the limitations of authority of the engineer as the owner's representative during construction are set forth herein in **Articles 1 through 17** of these "General Conditions" and shall not be extended without written consent of the owner and the engineer.

9.1.1 The engineer's decision in matters relating to aesthetics shall be final if within the terms of the contract documents.

9.1.2 Except as may be otherwise provided in this contract, all claims, counter-claims, disputes, and other matters in question between the owner and the contractor arising out of or relating to this agreement or the breach thereof will be decided by arbitration if the parties hereto mutually agree, or in a court of competent jurisdiction within the state in which the owner is located.

9.2 Visits to Site

The engineer will make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. The engineer will not be required to make continuous on-site observations to check the quality or quantity of the work. The engineer's efforts will be directed toward ascertaining on behalf of the owner that the completed project will conform to the requirements of the contract documents. On the basis of his on-site observations as an experienced and qualified design professional, he will keep the owner informed of the progress of the work and will endeavor to guard the owner against defects and deficiencies in the work of contractors.

9.3 Clarifications and Interpretations

The engineer will issue with reasonable promptness such written clarifications or interpretations of the contract documents (in the form of drawings or otherwise) as he may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the contract documents. If the contractor believes that a written clarification and interpretation entitles him to an increase in the contract price or extension of contract time, he may make a claim thereof as provided herein in **Articles 11 and 12**.

9.4 Measurement of Quantities

All work completed under the contract will be measured by the engineer according to the United States Standard Measures. All linear surface measurements will be made horizontally or vertically as required by the item measured.

9.5 Rejecting Defective Work

The engineer will have authority to disapprove or reject work which is "defective" (which term is hereinafter used to describe work that is unsatisfactory, faulty, or defective, does not conform to the requirements of the contract documents, does not meet the requirements of any inspection, test, or approval referred to in the special conditions, or has been damaged prior to final acceptance). The engineer will also have authority to require special inspection or testing of the work as provided in the special conditions, whether or not the work is fabricated, installed, or completed.

9.6 Shop Drawings, Change Orders, and Payments

In connection with the engineer's responsibility as to shop drawings and samples, see herein **Article 6**, paragraphs 6.25 through 6.27, inclusively.

9.7 Engineer's Responsibility for Change Orders

In connection with the engineer's responsibility for change orders, see herein **Articles 10, 11, and 12**.

9.8 Engineer's Responsibility Regarding Application for Payment

In connection with the engineer's responsibilities in respect of "Application for Payment," etc., see herein **Article 14**.

9.9 Resident Project Representative

The owner or the engineer will provide on-site representation sufficient to guarantee that construction is in general compliance with the construction drawings and the contract specifications.

9.10 Decisions on Disagreements

The engineer will be the initial interpreter of the terms and conditions of the contract documents and the judge of the performance thereunder. In his capacity as interpreter and judge he will exercise his best efforts to insure faithful performance by both the owner and the contractor. He will not show partiality to either and shall not be liable for the result of any interpretation or decision rendered in good faith. Claims, disputes, and other matters relating to the execution and progress of the work or the interpretation of or performance under the contract documents shall be referred initially to the engineer for decision, which he shall render in writing within a reasonable time.

9.11 Right to Request Arbitration

Either the owner or the contractor, if the other agrees, may request arbitration with respect to any such claim, dispute, or other matter that has been referred to the engineer, except any that have been waived by the making or acceptance of final payment as provided herein in **Article 14**, paragraph 14.11, and such arbitration is to be in accordance with herein **Article 16**. However, no request for arbitration of any such claim, dispute, or other matter shall be made until the earlier of (a) the date on which the engineer has rendered his decision or (b) the tenth day after the parties have presented their evidence to the engineer if the engineer has not rendered his written decision before that date. No request for arbitration shall be made later than thirty (30) days after the date on which the engineer rendered his written decision in respect of the claim, dispute, or other matter to which arbitration is sought, and the failure to request arbitration within said thirty (30) days' period shall result in the engineer's decision being final and binding upon the owner and the contractor. If the engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not supersede the arbitration proceedings except where the decision is acceptable to the parties concerned.

9.12 Limitations of Engineer's Responsibilities to Contractor and Others

Neither the engineer's authority to act under this herein **Article 9** nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the engineer to the contractor, any subcontractor, any of their agents or employees or any other person performing any of the work.

9.13 Engineer's Limitations of Responsibility

The engineer will not be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions and programs incident thereto, and he will not be responsible for the contractor's failure to perform the work in accordance with the contract documents.

9.14 Engineer's Limitations of Responsibility for Omissions

The engineer will not be responsible for the acts or omissions of the contractor, or any subcontractors, or any of his or their agents or employees, or any other persons performing any of the work.

ARTICLE 10

CHANGES IN WORK

10.1 Owner's Right to Initiate Change Orders

Without invalidating the agreement, the owner may, at any time or from time-to-time, order additions, deletions, or revisions in the work; these will be authorized by change orders. Upon receipt of a change order, the contractor will proceed with the work involved. All such work shall be executed under the applicable conditions of the contract documents. If any change order causes an increase or decrease in the contract price or

an extension or shortening of the contract time, an equitable adjustment will be made as provided herein in **Article 11** or **Article 12**. A change order signed by the contractor indicates his agreement therewith.

10.2 Authorization of Minor Changes or Alterations

The engineer may authorize minor changes or alterations in the work not involving extra cost and not inconsistent with the overall intent of the contract documents. These changes and/or alterations may be accomplished by a field order. If the contractor believes that any minor change or alteration authorized by the engineer entitles him to an increase in the contract price or extension of contract time, the contractor may make a claim thereof as provided herein in **Articles 11** and **12**.

10.3 Unauthorized Additional Work

Additional work performed by the contractor without authorization of a change order will not entitle him to an increase in the contract price or an extension of the contract time except in the case of an emergency as provided herein in **Article 6**, paragraph 6.21 and except as provided herein in **Article 10**, paragraph 10.2.

10.4 Execution of Change Order(s)

The owner will execute appropriate change orders prepared by the engineer covering changes in the work to be performed as provided herein in **Article 4**, paragraph 4.4, and work performed in an emergency as provided herein in **Article 6**, paragraph 6.21 and any other claim of the contractor for a change in the contract time or the contract price, which is approved by the engineer.

10.5 Notification of Surety of Changes

It is the contractor's responsibility to notify his surety of any changes affecting the general scope of the work or change in the contract price and the amount of the applicable bonds shall be adjusted accordingly. The contractor will furnish proof of such adjustment to the owner.

ARTICLE 11

CHANGE OF CONTRACT PRICE

11.1 Total Compensation Payable to Contractor

The contract price constitutes the total compensation payable to the contractor for performing the work. All duties, responsibilities, and obligations assigned to or undertaken by the contractor shall be at his expense without changing the contract price.

11.2 Owner's Written and/or Verbal Change Orders

11.2.1 The owner may, at any time and without notice to the sureties, by written order designated or indicated to be a change order, make any change in the work

within the general scope of the contract, including but not limited to changes: (a) in the specifications (including drawings and designs); (b) in the method or manner of performance of the work; (c) in the owner-furnished facilities, equipment, materials, services, or site; or (d) directing acceleration in the performance of the work, and/or (e) directing the contractor to stop work for a stated time.

11.2.2 Any other written order or an oral order (which terms as used in this paragraph shall include direction, instruction, interpretation, or determination) from the owner, which causes any such change, shall be treated as a change order under this clause, provided that the contractor gives the owner written notice stating the date, circumstances, and source of the order and that the contractor regards the order as a change order.

11.2.3 Except as herein provided, no order, statement, or conduct of the owner shall be treated as a change under this clause or entitle the contractor to an equitable adjustment hereunder.

11.2.4 If any change under this clause causes an increase or decrease in the contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any order, an equitable adjustment shall be made and the contract modified in writing accordingly: Provided, however, that except for claims based on defective specifications, no claim for any change under above listed paragraph 11.2.2 shall be allowed for any costs incurred more than twenty (20) days before the contractor gives written notice as therein required. And provided further that in the case of defective specifications for which the owner is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the contractor in attempting to comply with such defective specifications.

11.2.5 If the contractor intends to assert a claim for an equitable adjustment under this clause, he must, within 30 days after receipt of a written change order under above listed paragraph 11.2.1 or the furnishing of a written notice under above listed paragraph 11.2.2, submit to the owner a written statement setting forth the general nature and monetary extent of such claim, unless this period is extended by the owner. The statement of claim hereunder may be included in the notice under above listed paragraph 11.2.2. If not received by the owner within 30 days, the owner may choose to reject the contractor's information relating to such claim without review.

11.2.6 No claim by the contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

11.3 Determination of Change Order Compensation

The compensation of any portion of the work covered by a change order or of any claim for an increase or decrease in the contract price shall be determined in one of the following ways:

11.3.1 where the change order involved is covered by unit prices contained in the contract documents by application of unit prices to the quantities of the items involved. Should the items (by quantity) be increased or decreased by more than 15 percent (15%) from that stipulated in the contract documents and the total dollar amount is significant (greater than ten thousand dollars [\$10,000]), either the owner or the contractor may request to negotiate a new unit price for the quantities in excess of the 15 percent (15%) window to protect their financial interest in the project.

11.3.2 by negotiated lump sum.

11.3.3 the actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work plus a fixed amount to be agreed upon to cover the cost of general overhead and profit to be negotiated.

11.4 Defining "Cost of the Work"

The term "Cost of the Work" (also "Cost of Work") means the sum of all costs necessarily incurred and paid by the contractor in the proper performance of the work. Except as otherwise may be agreed to in writing by owner, such costs shall be in amounts no higher than those prevailing in the locality of the project shall include only the following items and shall not include any of the costs itemized herein in **Article 11**, paragraph 11.5:

11.4.1 payroll costs for employees in the direct employ of contractor in the performance of the work under schedules of job classifications agreed upon by owner and contractor. Payroll costs for employees not employed full time on the work shall be apportioned on the basis of their time spent on the work. Payroll costs shall include, but not be limited, to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise and payroll taxes, workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation, and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Sunday, or legal holidays shall be included in the above to the extent authorized by owner.

11.4.2 cost of all materials and equipment furnished and incorporated in the work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith. All cash discounts shall accrue to contractor unless owner deposits funds with contractor with which to make payments, in which case the cash discounts shall accrue to owner. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and

equipment shall accrue to owner, and contractor shall make provisions so that they may be obtained.

11.4.3 payments made by contractor to the subcontractors for work performed by subcontractors. If required by owner, contractor shall obtain competitive bids from subcontractors acceptable to him and shall deliver such bids to owner who will then determine with the advice of engineer which bids will be accepted. If a subcontract provides that the subcontractor is to be paid on the basis of "Cost of Work" plus a fee, the cost of the work shall be determined in accordance with herein **Article 11**, paragraphs 11.4 and 11.5. All subcontracts shall be subject to the other provisions of the contract documents insofar as applicable.

11.4.4 costs of special consultants (including, but not limited to, engineers, architects, testing laboratories, surveyors, lawyers, and accountants) employed for services specifically related to the work.

11.4.5 supplemental costs including the following:

11.4.5.1 the proportion of necessary transportation, traveling, and subsistence expenses of contractor's employees incurred in discharge of duties connected with the work.

11.4.5.2 cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the site and hand tools not owned by the workmen that are consumed in the performance of the work, and cost less market value of such items used but not consumed, which remain the property of contractor.

11.4.5.3 rentals of all construction equipment and machinery and the parts thereof whether rented from contractor or others in accordance with rental agreements approved by owner with the advise of engineer, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the work.

11.4.5.4 sales, use, or similar taxes related to the work and for which contractor is liable, imposed by any governmental authority.

11.4.5.5 deposits lost for causes other than contractor's negligence, royalty payments, and fees and licenses. Costs for permits and licenses must be shown as a separate item.

11.4.5.6 losses, damages, and expenses, not compensated by insurance or otherwise, sustained by contractor in connection with the execution of, and to,

the work, provided they have resulted from causes other than the negligence of contractor, any subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of owner. No such losses, damages, and expenses shall be included in the cost of the work for the purpose of determining contractor's fee. If, however, any such loss or damage requires reconstruction and contractor is placed in charge thereof, he shall be paid for his services a fee proportionate to that stated herein in **Article 11**, paragraph 11.6.2.

11.4.5.7 the cost of utilities, fuel, and sanitary facilities at the site.

11.4.5.8 minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage, and similar petty cash items in connection with the work.

11.4.5.9 cost of premiums for additional bonds and insurance required because of changes in the work.

11.5 Limitations Regarding "Cost of Work"

The term "Cost of Work" shall not include any of the following:

11.5.1 payroll costs and other compensation of contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by contractor, whether at the site, or in his principal, or a branch office for general administrator of the work and not specifically included in the schedule referred to herein in **Article 11**, subparagraph 11.4.1 - all of which are to be considered administrative costs covered by the contractor's fee.

11.5.2 expenses of contractor's principal and branch offices other than his office at the site.

11.5.3 any part of contractor's capital expenses, including interest on contractor's capital employed for the work and charges against contractor for delinquent payments.

11.5.4 cost of premiums for all bonds and for all insurance policies whether or not contractor is required by the contract documents to purchase and maintain the same (except as otherwise provided herein in **Article 11**, subparagraph 11.4.5.9.)

11.5.5 costs due to the negligence of contractor, any subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be

liable, including but not limited to the correction of defective work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

11.5.6 other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included herein in **Article 11**, paragraph 11.4.

11.6 Determining Contractor's Fee

The contractor's fee, which shall be allowed to contractor for his overhead and profit, shall be determined as follows:

11.6.1 a mutually acceptable firm, fixed price; or if none can be agreed upon,

11.6.2 a mutually acceptable fixed fee based on the estimate of the various portions of the "Cost of Work."

11.7 Credits from Contractor to Owner

The amount of credit to be allowed by contractor to owner for any such change that results in a net decrease in cost will be the amount of the actual net decrease. When both additions and credits are involved in any one charge, the net shall be computed to include overhead and profit, identified separately, for both additions and credits.

11.8 Itemizing Cost

Whenever the cost of any work is to be determined pursuant to herein **Article 11**, paragraphs 11.4 and 11.5, contractor will submit in form prescribed by engineer an itemized cost break-down together with supporting data.

11.9 Allowances

It is understood that the contractor has included in the contract price all allowances so named in the contract documents and shall cause the work so covered to be done by such material-men, suppliers, or subcontractors and for such sums within the limit of the allowances as the engineer may approve. Upon final payment, the contract price shall be adjusted as required and an appropriate change order issued. The contractor agrees that the original contract price includes such sums as he deems proper for costs and profit on account of cash allowances. No demand for additional cost or profit in connection therewith will be allowed.

11.9.1 These allowances shall cover the cost of the contractor less any applicable trade discount of the materials and equipment required by the allowance delivered at the site and all applicable taxes.

11.9.2 The contractor's costs for unloading and handling on the site: labor, installation costs, overhead, profit, and other expenses contemplated for the original allowance shall be included in the contract price and not in the allowance.

11.9.3 Whenever the cost as described in above listed **Article 11**, paragraph 11.9.1 is more or less than the allowance, the contract price shall be adjusted accordingly by change order. The amount of the change order will recognize changes, if any, in handling costs on the site: labor, installation costs, overhead, profit, and other expenses except that whenever unit price allowances are stipulated for brick, the change order will not include any cost as described in above listed **Article 11**, paragraph 11.5.

ARTICLE 12

CHANGE OF CONTRACT TIME

12.1 Contract Time Change Order

The contract time may only be changed by a change order. Any claim for an extension in the contract time shall be based on written notice delivered to owner and engineer within ten (10) days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five (45) days of such occurrence unless engineer allows an additional period of time to ascertain more accurate data. All claims for adjustment in the contract time shall be determined by engineer if owner and contractor cannot otherwise agree. Any change in the contract time resulting from any such claim shall be incorporated in a change order.

12.2 Extended Contract Time Requirements

The contract time will be extended in an amount equal to time lost due to delays beyond the control of contractor if he makes a claim therefore as provided herein in **Article 12**, paragraph 12.1. Such delays shall include, but not be restricted to acts or neglect by any separate contractor employed by owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

12.3 Binding Time Limits

All time limits stated in the contract documents are of the essence of the agreement. The provisions of this herein **Article 12** shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

12.4 Claims Due to Drawing(s) Delays

No claim for delay shall be allowed because of failure to furnish drawings until two weeks after demand for such drawings and not then unless such claim be reasonable.

12.5 Other Damage Recovery Rights

This **Article 12** does not exclude the recovery of damages for delay by either party under other provisions in the contract documents.

ARTICLE 13

GUARANTY

Contractor's Guaranty Requirements

The contractor shall guarantee all materials and equipment furnished and work performed for a period of one (1) year from the date of substantial completion. The contractor warrants and guarantees for a period of one (1) year from the date of substantial completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The owner will give notice of observed defects with reasonable promptness. In the event that the contractor should fail to make such repairs, adjustments, or the work that may be made necessary by such defects, the owner may do so and charge the contractor the cost thereby incurred. The performance bond shall remain in full force and effect through the guarantee period.

ARTICLE 14

PAYMENTS AND COMPLETION

14.1 Payments to Contractor

At least ten (10) days before each progress payment falls due (but not more often than once a month), the contractor will submit to the engineer a partial payment estimate filled out and signed by the contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the engineer may reasonably require. If a payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the owner. The engineer will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the owner, or return the partial payment estimate to the contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the contractor may make the necessary corrections and resubmit the partial payment estimate. The owner will, within ten (10) days of presentation to him of an approved partial payment estimate, pay the contractor a progress payment on the basis of the approved partial payment estimate. The owner shall retain a portion of the amount otherwise due the contractor in accordance with Section 31-5-33 of the Mississippi Code.

14.2 Contractor's Warranty of Title

The contractor warrants and guarantees that title to all work, materials, and equipment covered by an "Application for Payment," whether incorporated in the project or not, will have passed to the owner prior to the making of the "Application for Payment" free

and clear of all liens, claims, security, interests and encumbrances (hereafter in these general conditions referred to as "Liens") and that no work, materials, or equipment covered by an "Application for Payment" will have been acquired by the contractor or by any other person performing the work at the site or furnishing materials and equipment for the project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the contractor or such other person.

14.3 Approval of Payments

The engineer's approval of any payment requested in an "Application for Payment" shall constitute a representation by him to the owner based on the engineer's on-site observations of the work in progress as an experienced and qualified design professional and on his review of the "Application for Payment" and the supporting data that the work has progressed to the point indicated; that, to the best of his knowledge, information, and belief, the quality of the work is in accordance with the contract documents (subject to an evaluation of the work is a functioning project upon substantial completion, to the results of any subsequent tests called for in the contract documents and any qualifications stated in his approval); and that the contractor is entitled to payment of the amount approved. However, by approving any such payment the engineer shall not thereby be deemed to have represented that he made exhaustive or continuous on-site observations to check the quality or the quantity of the work; or that he has reviewed the means, methods, techniques, sequences, and procedures of construction; or that he has made any examination to ascertain how or for what purpose the contractor has used the moneys paid or to be paid to him on account of the contract price; or that title to any work, materials, or equipment has passed to the owner free and clear of any liens.

14.4 Contractor's Certification Statement

The contractor shall make the following certification on each request for payment:

"I hereby certify that the labor and materials listed on this request for payment have been used in the construction of this work or that all materials included in this request for payment and not yet incorporated into the construction are now on the site or stored at an approved location, and payment received from the last request for payment has been used to make payments to all first-tier subcontractors and suppliers except as listed below."

14.5 Engineer's Final Payment Approval

The engineer's approval of final payment shall constitute an additional representation by him to the owner that the conditions precedent to the contractor's being entitled to final payment as set forth herein in **Article 14**, paragraph 14.11 have been fulfilled.

14.6 Engineer's Right to Refuse Payment Approval

The engineer may refuse to approve the whole or any part of any payment if, in his opinion, he is unable to make such representations to the owner as above listed in

Article 14, paragraph 14.5. He may also refuse to approve any such payment, or because of subsequently discovered evidence or the results of subsequent inspection or tests, nullify any such payment previously approved, to such extent as may be necessary in his opinion to protect the owner from loss because:

14.6.1 the work is defective, or completed work has been damaged requiring connection or replacement;

14.6.2 the work for which payment is requested cannot be verified;

14.6.3 claims or liens have been filed, or there is reasonable evidence indicating the probable filing thereof;

14.6.4 the contract price has been reduced because of modifications;

14.6.5 the owner has been required to correct defective work or complete the work in accordance herein with **Article 13**, paragraph 13.1;

14.6.6 of unsatisfactory prosecution of the work, including failure to clean up as required by herein **Article 6**, paragraphs 6.28, 6.29 and 6.30;

14.6.7 of persistent failure to cooperate with other contractors on the project and persistent failure to carry out the work in accordance with the contract documents;

14.6.8 of liquidated damages payable by the contractor; or

14.6.9 of any other violation of or failure to comply with the provisions of the contract documents.

14.7 Owner's Use of Completed or Partially Completed Work

Prior to substantial completion, the owner, with the approval of the engineer and with the concurrence of the contractor, may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

14.8 Owner's Right to Entry

The owner shall have the right to enter the premises for the purpose of doing work not covered by the contract documents. This provision shall not be construed as relieving the contractor of the sole responsibility for the care and protection of the work or the restoration of any damaged work except such as may be caused by agents or employees of the owner.

14.9 Engineer's Certificate

Upon completion and acceptance of the work the engineer shall issue a certificate attached to the final payment request that the work has been accepted by him under the conditions of the contract documents. The entire balance found to be due the contractor including the retained percentages, but except such sums as may be lawfully retained by the owner, shall be paid to the contractor within sixty (60) days of completion and acceptance of the work.

14.10 Contractor's Indemnification Requirements to Owner

The contractor will indemnify and save the owner or the owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishes of machinery and parts thereof, equipment, tools, and all supplies incurred in the furtherance of the performance of the work. The contractor shall, at the owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the contractor fails to do so, the owner may, after having notified the contractor, either pay unpaid bills or withhold from the contractor's pay from the contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the contractor shall be resumed in accordance with the terms of the contract documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the owner to either the contractor, his surety, or any third party. In paying any unpaid bills of the contractor, any payment so made by the owner shall be considered as a payment made under the contract documents by the owner to the contractor and the owner shall not be liable to the contractor for any such payments made in good faith.

14.11 Acceptance of Final Payment as Release

The acceptance by the contractor of final payments shall be and operate as a release to the owner of all claims and all liability to the contractor other than claims in stated amounts as may be specifically excepted by the contractor for all things done or furnished in connection with his work and for every fact and neglect of the owner and others relating to or arising out of his work. Any payment, however, final or otherwise, shall not release the contractor or his sureties from any obligations under the contract documents or the performance bond and payment bonds.

ARTICLE 15

SUSPENSION OF WORK AND TERMINATION

15.1 Owner May Suspend Work

The owner may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the contractor and the engineer,

which shall fix the date on which work shall be resumed. The contractor will resume the work on the date so fixed. The contractor will be allowed an increase in the contract price or an extension of the contract time, or both, directly attributable to any suspension if he makes claim therefore as provided herein in **Articles 11 and 12.**

15.2 Work During Inclement Weather

No work shall be done under these specifications except by permission of the owner when the weather is unfit for good and careful work to be performed. Should the severity of the weather continue, the contractor, upon the direction of the owner, shall suspend all work until instructed to resume operations by the owner and the contract time shall be extended to cover the duration of the order. Work damaged during the periods of suspension due to inclement weather shall be repaired and/or replaced by the contractor. Any compensation for repairs or replacements shall be subject to approval of the owner.

15.3 Owner May Terminate

If the contractor is adjudged bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the contractor or for any of his property, or if he files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws, or if he repeatedly fails to supply sufficient skilled workman or suitable materials or equipment, or if he repeatedly fails to make prompt payments to subcontractors or for labor, materials, and/or equipment, or he disregards laws, ordinances, rules regulations or orders of any public body having jurisdiction, or if he disregards the authority of the engineer, or if he otherwise violates any provision of the contract documents, then the owner may, without prejudice to any other right or remedy and after giving the contractor and his surety seven (7) days written notice, terminate the services of the contractor and take possession of the project and of all materials, equipment, tools, construction equipment, and machinery thereon owned by the contractor and finish the work by whatever method he may deem expedient. In such case the contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the project, including compensation for additional professional services, such excess shall be paid to the contractor. If such costs exceed such unpaid balance, the contractor or the surety will pay the difference to the owner. Such costs incurred by the owner will be determined by the engineer and incorporated in a change order.

15.4 Rights of Owner Against Terminated Contractor

Where the contractor's services have been so terminated by the owner, said terminations shall not affect any rights of the owner against the contractor then existing or which may thereafter accrue. Any retention or payment of moneys by the owner due the contractor will not release the contractor from liability.

15.5 Owner's Right to Abandon Project

Upon seven (7) days written notice to the contractor and the engineer, the owner may, without cause and without prejudice to any other right or remedy, elect to abandon the project and

terminate the agreement. In such case, the contractor shall be paid for all work executed and any expenses sustained plus a reasonable profit.

15.6 Removal of Equipment

In the case of termination of this contract before completion for any cause whatever, the contractor, if notified to do so by the owner, shall promptly remove any part or all of his equipment and supplies from the property of the owner. Should the contractor not remove such equipment and supplies, the owner shall have the right to remove them at the expense of the contractor. Equipment and supplies shall not be construed to include such items for which the contractor has been paid in whole or in part.

15.7 Contractor May Stop Work or Terminate

If, through no act or fault of the contractor, the work is suspended for a period of more than ninety (90) days by the owner, or under an order of court or other public authority, or the engineer fails to act on any "Application for Payment" within sixty (60) days after it is submitted, or the owner fails to pay the contractor any sum approved by the engineer or awarded by arbitrators within sixty (60) days of its approval and presentation, then the contractor may, upon seven (7) days written notice to the owner and the engineer, terminate the agreement and recover from the owner payment for all work executed and any expense sustained plus a reasonable profit. In addition and in lieu of terminating the agreement, if the engineer has failed to act on an "Application for Payment" or the owner has failed to make any payment as aforesaid, the contractor may upon seven (7) days notice to the owner and the engineer stop the work until he has been paid all amounts then due.

15.8 Owner Furnished Equipment

In case the owner furnishes equipment to the contractor to install but fails to deliver it to the contractor as required by supplementary or special conditions, and in case such failure causes the contractor additional expense or need for extension of time, the contractor may make such claims upon the owner and obtain adjustments as provided herein.

15.9 Liquidated Damages

If the contractor shall fail to complete the work within the contract time or extension of time granted by the owner, then the contractor will pay to the owner the amount for liquidated damages as shown on his bid for each calendar day that the contractor shall be in default after the time stipulated in the contract documents.

ARTICLE 16

ARBITRATION

16.1 Arbitration Standards and Rules

All claims, disputes and other matters in question arising out of, or related to, this agreement or the breach thereof except for claims which have been waived by the making or acceptance of final payment as provided herein by **Article 14**, paragraph 14.11, shall be decided by arbitration, if all parties mutually agree, in accordance with the "Construction Industry Arbitration Rules of the

American Arbitration Association” then obtaining, or in a court of competent jurisdiction. This agreement so to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof. The arbitration decision must present findings of fact, conclusions of law, basis of award, and rationale.

16.2 Notice of Arbitration Requirements

Notice of the request for arbitration shall be filed in writing with the other party to the agreement and with the American Arbitration Association, if both parties mutually agree to arbitration, and a copy shall be filed with the engineer. The request for arbitration shall be made within the thirty (30) day period specified herein in **Article 9**, paragraph 9.11 where applicable, and in all other cases within a reasonable time after the claim, dispute, or other matter in question has arisen and in no event shall it be made after institution of legal or equitable proceedings based on such claim, dispute, or other matter in question would be barred by the applicable statute of limitations.

16.3 Arbitration Affects on Work

The contractor will carry on the work and maintain the progress schedule during any arbitration proceedings unless otherwise agreed by him and the owner in writing.

ARTICLE 17

MISCELLANEOUS

17.1 Recognized Delivery of Notice(s)

Whenever any provision of the contract documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended or if delivered at or sent by registered or certified mail, postage prepaid to the last business address known to him who gives the notice.

17.2 Owner’s Failure to Pay Contractor

If the owner fails to make payment sixty (60) days after approval by the engineer, in addition to other remedies available to the contractor, there shall be added to each such progress payment, interest at one percent (1%) per month commencing on the first day after said payment is due and continuing until the payment is received by the contractor.

17.3 Engineer’s Property

All specifications, drawings, and copies thereof furnished by the engineer shall remain the engineer’s property. They shall not be used on another project, and, with the exception of those sets which have been signed in connection with the execution of the agreement, shall be returned to him on request upon completion of the project.

17.4 Non-Limiting Rights and Remedies by Herein Identified Documents

The duties and obligations imposed by these general conditions, special conditions, and supplemental general conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warranties, guarantees, and obligations imposed upon contractor and

those in the special conditions and the rights and remedies available to owner and engineer thereunder shall be in addition to, and shall not be construed in any way as a limitation of, any rights and remedies available to them which are otherwise imposed or available by law, by special guarantee, or be other provisions of the contract documents.

17.5 Notice of Injury or Damage Claim

Should the owner or the contractor suffer injury or damage to his/its person or property because of any error, omission or act of the other or of any of his/its employees or agents or others for whose acts he/it is legally liable, claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage.

17.6 Laws that Supersede Contract Documents

The contract documents shall be governed by the law of the place (location) of the project.

17.7 Practicable Schedule

The contractor shall within five (5) days or within such time as determined by the owner after date of commencement of work prepare and submit to the owner for approval a practicable schedule showing the order in which the contractor proposes to carry on the work, the date on which he will start the several salient features (including procurement of materials, plans and equipment), and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale to indicate approximately the percentage of work scheduled for completion at any time. The contractor shall enter on the chart the actual progress at such intervals as directed by the owner and shall immediately deliver to the owner three (3) copies thereof. If the contractor fails to submit a progress schedule within the time herein prescribed, the owner may withhold approval of progress payment estimates until such time as the contractor submits the required progress schedule.

17.8 Falling behind the Progress Schedule

If, in the opinion of the owner, the contractor falls behind the progress schedule, the contractor shall take such steps as may be necessary to improve his progress and the owner may require him to increase the number of shifts or overtime operations, days of work, or the amount of construction plant, or update the progress schedule to reflect increased production for meeting the completion date, or all of them, and to submit for approval such supplementary schedule or schedules in chart form as may be deemed necessary to demonstrate the manner in which the agreed rate of progress will be regained, all without additional cost to the owner.

17.9 Failure of Contractor to Comply with Owner Requirements

Failure of the contractor to comply with the requirements of the owner under this provision shall be grounds for determination by the owner that the contractor is not prosecuting the work with such diligence as will insure completion within the time specified. Upon such determination, the owner may terminate the contractor's right to proceed with the work or any separable part thereof in accordance with the clause of the contract entitled, "Termination for Default-Damages for Delay – Time Extensions."

17.10 Failure to Complete the Work on Time

Should the contractor fail to complete the work within the specified time or within any extra time allowed under these specifications, a sum of money determined by the following schedule shall be deducted from any funds due the contractor. The owner shall have the right to recover the said sum or sums from the contractor or from the surety or from both. The amounts of these deductions are to cover the liquidated damages to the owner incurred by additional or other expenses due to the failure of the contractor to complete the work or any part of the work within the time specified, and such deductions are not to be considered penalties.

17.11 Liquidated Damages

The damages indicated in the contract documents shall be considered as liquidated damages for the loss to the owner on account of the expense due to the employment of engineers and their assistants and to any others expenses incurred after the expiration of the contract time as determined by the engineer.

17.12 Laws that Supersede Contract Documents

The contract documents shall be governed by the law of the place (location) of the project.

SUPPLEMENTAL GENERAL CONDITIONS

ARTICLE 1 - SPECIAL CONDITIONS

SCOPE AND INTENT

Special conditions shall prevail over General Conditions in case of conflict. The Contractor shall furnish all labor, materials, equipment (including fuel), tools, appliances, transportation and perform all operations in connection with the construction of, alterations to, or repair of, the building, including utilities, complete, in strict accordance with the specifications and the plans governing the construction of, alterations to, or repair of, the project.

EXAMINATION OF PREMISES

Before submitting a proposal for his work, each bidder shall be held responsible to have examined the site and satisfied himself as to the conditions under which work is to be performed.

PERMITS, TAXES, AND ORDINANCES

The Contractor shall pay for all required permits, give legal notices, and pay taxes and assessments levied in connection with this contract. Building regulations of the City of Petal Building Code shall be strictly adhered to and the contractor shall be responsible for knowledge thereof.

INSURANCES, ETC.

In addition to the requirements of the General Conditions, insurance coverage specified herein constitutes the minimum requirements and said requirements shall in no way lessen or limit the liability of the **CONTRACTOR** under the terms of the Contract. The **CONTRACTOR** shall procure and maintain at his own expense any additional kinds and amounts of insurance that, in his own judgment, may be necessary for his proper protection in the prosecution of the Work.

The **CONTRACTOR** shall carry insurance as prescribed herein and all policies shall be with companies satisfactory to the **OWNER**.

If a part of this Contract is sublet, the **CONTRACTOR** shall require each Subcontractor to carry insurance of the same kinds and in like amounts as carried by the **CONTRACTOR**.

Certificates of insurance shall state that 30 days written notice will be given to the **OWNER** before the policy is canceled or changed. No **CONTRACTOR** or Subcontractor will be allowed to start any construction work on this Contract until certificates of all insurance required herein are filed and approved by the **OWNER**. The certificates shall show the type, amount, class of operations covered, effective dates and the dates of expiration of policies. The **CONTRACTOR** shall secure and maintain in effect for the period of the Contract and pay all premiums for the following kinds and amounts of insurance.

A. Workers' Compensation and Employer's Liability Insurance

This insurance shall protect the **CONTRACTOR** against all claims under applicable

State Worker's Compensation Laws. The **CONTRACTOR** shall also be protected and shall cause each Subcontractor to be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Worker's Compensation Law. The liability limits shall not be less than the required statutory limits for Worker's Compensation and Employer's Liability in the amount of ONE HUNDRED THOUSAND DOLLARS (\$100,000.00) for each person. This policy shall include an all states endorsement.

- B. **CONTRACTOR'S Comprehensive Public Liability and Property Damage Insurance**, covering all operations in connection with the performance of this Contract in amounts not less than the following:

Bodily injury liability in the amount of FIVE HUNDRED THOUSAND DOLLARS (\$500,000) for each person and ONE MILLION DOLLARS (\$1,000,000) for each accident and property damage liability in the amount of TWO HUNDRED FIFTY THOUSAND DOLLARS (\$250,000) for all damages arising out of the injury or destruction of property in any one accident and subject to that limit per accident a total for aggregate limit of FIVE HUNDRED THOUSAND DOLLARS (\$500,000) for all damages arising out of injury to or destruction of property during the policy period. The Comprehensive Public Liability and Property Damage policies carried by both the **CONTRACTOR** and the Subcontractors shall contain an endorsement to include the coverage of the following hazards:

- a. Explosion, collapse, and underground property damage to include any damage or destruction of property below the surface of the ground, such as wires, conduits, pipes, mains, sewers, etc., caused by the **CONTRACTOR'S** operations.
- b. The collapse of and structural injury to any building, structure or property on or adjacent to the **OWNER'S** premises or right-of-way caused by the **CONTRACTOR'S** operations in the removal of other buildings, structures, or supports, or by excavation below the surface of the ground.
- c. Contractual Liability Coverage for the Hold Harmless segments of the Contract Documents.

- C. **CONTRACTOR'S Contingent or Protective Liability and Property Damage:**

In case part of this Contract is sublet, the **CONTRACTOR** shall secure contingent or protective liability and property damage insurance to protect him from any and all claims arising from the operation of his Subcontractors in the execution of Work included in the Contract. In no case shall the amount of such protection be less than the limits of \$500,000/\$1,000,000 for Public Liability Insurance and \$500,000/\$1,000,000 for Property Damage Insurance. The coverage in each case shall be acceptable to the **OWNER**.

D. Automotive Public Liability and Property Damage

The **CONTRACTOR** shall maintain automobile public liability insurance in the amount of not less than FIVE HUNDRED THOUSAND DOLLARS (\$500,000) for injury to one person and ONE MILLION DOLLARS (\$1,000,000) for one accident; and automobile property damage insurance in the amount of not less than FIVE HUNDRED THOUSAND DOLLARS (\$500,000) for one accident to protect him from any and all claims arising from the use of the following:

- a. **CONTRACTOR'S** own automobiles and trucks.
- b. Hired automobiles and trucks.
- c. Automobiles and trucks owned by Subcontractors.

The aforementioned is to cover use of automobiles and trucks on and off the site of the Project.

E. OWNER'S Protective Liability Policy

The **CONTRACTOR** shall maintain **OWNER'S** Protective Liability Insurance with the **OWNER** as the named insured, and the **ENGINEER**, and their servants, agents and employees as additional insureds in amounts not less than the following:

- a. Bodily Injury in the amount of ONE MILLION DOLLARS (\$1,000,000) for each person and ONE MILLION DOLLARS (\$1,000,000) for each accident and property damage liability in the amount of FIVE HUNDRED THOUSAND DOLLARS (\$500,000) for all damages arising out of an injury or destruction of property in any one accident and subject to that limit per accident a total (or aggregate) limit of ONE MILLION DOLLARS (\$1,000,000) for all damages arising out of injury to or destruction of property during the policy period.

CLEANING UP

The Contractor shall, at all times, keep the premises free from accumulations of waste materials and at the completion of the work, shall remove all his rubbish, tools, temporary buildings, etc. from and about the site and shall leave his work "broom" clean unless more exactly specified elsewhere. All glass shall be washed and left free from stains of any nature.

GUARANTEE

The Contractor shall guarantee to City of Petal all work under this contract to be free from defects in workmanship and materials for a period of one (1) year from date of final acceptance.

BIDS

The form of proposal or an exact facsimile thereof must be used by Contractors submitting proposal for any or all of the work included in these specifications and/or the accompanying plans. The receipt of all Addenda must be acknowledged and the receipt signed by the Contractor or his duly authorized representative and attached to the proposal form when the bids are submitted.

SPECIAL INSTRUCTIONS

LIMITATIONS

During construction, care is to be taken to prevent damage to the work in place. As soon as work is completed, all work is to be thoroughly cleaned. Before completion, all damaged work is to be repaired and left in perfect condition. The Contractor will be responsible for all clean-up of the premises. All trash, etc. will be hauled away from the site, and the site left in a clean and neat condition. Alcoholic beverages of any type will not be permitted on job site.

PRODUCT/MATERIALS SUBSTITUTION

Contractor will submit prior to starting work on project any changes to materials specified. Contractor will submit all specification data, company name, and supplier of material that he wishes to substitute. All material will be evaluated. Contractor will be given approval/disapproval with five (5) days by Owner. No substitutes will be taken into consideration after work has begun, no substitutes will be allowed if Contractor does not submit specification data within time allowed.

INSPECTION

All work covered by these specifications shall be subject to inspection by Owner or his authorized representative. Contractor will coordinate with Owner for inspections as required during construction, and furnish to the Owner in writing a project schedule prior to mobilization of work at the job site.

WARRANTY

The Contractor, upon completion of the project, shall furnish one (1) year written guarantee on all materials and workmanship to begin on the date of acceptance by the Owner or the Owner's appointed representative.

SPECIFICATIONS AND DRAWINGS ARE RECIPROCAL

The specifications and drawings are intended mutually to explain each other and anything which is referred to in the specifications and not shown on the drawings shall be considered as being shown and mentioned and referred to in both of these documents. Such work shall be done and

performed accordingly. Any drawing attached to this specification form is an integral part thereof and where such drawings, if any, differ from these specifications, the specifications shall govern.

AS-BUILT DRAWINGS

Occasionally, during the course of construction, modifications and changes may occur due to site conditions, unforeseen circumstances and problems encountered. This may result in a modification of construction as originally depicted on drawings. Contractor will furnish the City of Petal a marked-up set of prints in red line of all changes and/or modifications that pertain to this contract. Drawings will be labeled. "AS-BUILT DRAWINGS".

GUARANTEES, WARRANTIES AND BONDS

1. All work will be guaranteed by the Contractor for a period of one (1) year from the date of substantial completion.
2. Wording for the notarized guarantee shall be as follows:
"We hereby guarantee all work performed by us on the above captioned project to be free from defective materials and workmanship for a period of one (1) year, or such longer period of time as may be called for in the Contract Documents for such portions of the work."
3. Guarantee Compliance:
Except as otherwise specified, all work shall be guaranteed by the Contractor and through him each sub-contractor against defects resulting from the use of inferior materials, equipment or workmanship for one (1) year from the date of substantial completion of the Contract. In case of work performed by his sub-contractors, the Contractor shall secure warranties from said sub-contractors and deliver copies of the same to the Owner upon completion of the work. If, within any guarantee period, repairs or changes are required in connection with guaranteed work which, in the Owner's opinion, are rendered necessary as the result of use of materials, equipment or workmanship which are inferior, defective or not in accordance with terms of the Contract: Contractor shall promptly upon receipt of Owner's written notice, and without expense of the Owner;
 - a. Place in satisfactory condition in every particular all such guaranteed work, correct all defects therein.
 - b. Make good all damage to the building, site, equipment or building contents which in the Owner's opinion is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with terms of the Contract.
 - c. Make good any work or material or the equipment and contents of building or site disturbed in fulfilling such guarantee.

In any case where fulfilling the requirements of the Contract, or any guarantee embraced in or required thereby, the Contractor disturbs any work guaranteed under another's Contract, he shall restore such disturbed work to condition satisfactory to the Owner and guarantee such restored work to the same extent as it was guaranteed under such other

contract. If the Contractor, after notice, fails to proceed promptly to comply with terms of the guarantee, the Owner may have the defects corrected and the Contractor and his surety shall be liable for all expense incurred. All special guarantees applicable to definite parts of the work that may be stipulated in the specification or other Contract Documents shall be subject to the terms of this Specification Section during the first year of the life of such special guarantees. All guarantees and warranties shall be obtained in the Owner's name and evidence thereof shall be promptly delivered to the Owner's Representative for transfer to the Owner.

CLOSE-OUT DOCUMENTS

In general documents for close out, to be submitted by the Contractor to the Owner, prior to final payment, shall be; but not limited to the following:

1. APPLICATION FOR PAYMENT: AIA Document G-702
2. CERTIFICATE OF SUBSTANTIAL COMPLETION: AIA Document G-704
3. CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS:
AIA Documents G-706 and G-706A: The Contractor shall furnish these AIA Documents complete with attached notarized full release of liens, damages, and a guarantee that all materials and labor are paid in accordance with Contract Documents with the following wording:
"WE HEREBY CERTIFY THAT ALL BILLS FOR LABOR AND MATERIALS INCORPORATED INTO THE ABOVE CAPTIONED PROJECT UNDER OUR CONTRACT HAVE BEEN PAID AND THAT THE OWNER IS RELEASED FROM ANY AND ALL CLAIMS AND/OR DAMAGES UNDER THIS CONTRACT."
4. CONSENT OF SURETY COMPANY TO FINAL PAYMENT: AIA Document G-707
To be completed in full by the Bonding Company.
5. CONTRACTOR'S NOTARIZED STATEMENT:
Notarized statement that project has been constructed in accordance with Contract Documents.
6. CONTRACTOR'S NOTARIZED STATEMENT OF GUARANTEE/S:
All work will be guaranteed by the Contractor for a period of one (1) year from the date of substantial completion. Wording will be as follows:
"WE HEREBY GUARANTEE ALL WORK PERFORMED BY US ON ABOVE CAPTIONED PROJECT TO BE FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR, OR SUCH LONGER PERIOD OF TIME AS MAY BE CALLED FOR IN THE CONTRACT DOCUMENTS FOR SUCH PORTIONS OF THE WORK."
In the case of work performed by his sub-contractors, the Contractor shall secure warranties from said sub-contractors and deliver copies of same to the Owner upon completion of work.
7. OPERATING AND MAINTENANCE MANUALS:
All manufacturer's operating instructions and maintenance manuals will be compiled in a tabbed and labeled 3-ring binder. (Furnish Owner with two (2) sets).
8. FORM W-9, PAYER'S REQUEST FOR TAXPAYER IDENTIFICATION NUMBER AND CERTIFICATION (IRS):
Form W-9 is to be completed by non-corporation contractors. Non-applicable if Contractors firm is Incorporated.
9. FINAL CLEANING:
At close out time clean and re-clean entire work to normal level for "FIRST CLASS" maintenance/cleaning.

MEASUREMENT AND PAYMENT

Unless otherwise noted in this section, Measurement and Payment for all bid items shall be in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, 2004 edition.

Measurement and payment for the following bid items shall be as described and shall include all material equipment, labor and testing to install and make operational a complete sewer system as detailed on the contract drawings and in these specifications.

SEWER MAIN (SDR-26), HDPE, DUCTILE IRON, OR OTHER

Payment for all sewer mains will be per linear foot for various diameter pipe measured from centerline of manhole to centerline of manhole in relation to the diameter of the pipe and the depth of cut as shown in the individual bid items. The item shall be paid per linear foot.

REMOVAL OF EXISTING SEWER LINE

Payment for removal of existing sewer line shall be as indicated on the construction plans. The item shall include all labor, materials and equipment necessary to complete the item. The item shall be paid per linear foot.

ABANDONMENT OF EXISTING SEWER LINE

Payment for abandonment of existing sewer line shall be as indicated on the construction plans. The item shall include all labor, materials and equipment necessary to complete the item. The item shall be paid per linear foot.

MANHOLES

Payment for manholes will be per each and depth of manhole in appropriate depth bracket measured from lid of manhole to downstream invert. Depth shall be based on individual bid items.

DEMOLITION AND REMOVAL OF EXISTING MANHOLE

Payment for demolition and removal of existing manhole shall be as indicated on the construction plans. The item shall include the removal of the manhole frame and lid assembly with storage and delivery to City of Hattiesburg, demolition of the remainder of the manhole as indicated on the construction plans removal of the manhole as indicated. The item shall include all labor, equipment and materials necessary to demolish and remove an existing manhole. Bypass pumping shall be an absorbed portion of this item should it be necessary for the removal. The item shall be paid per each.

ABANDONMENT OF EXISTING MANHOLE

Payment for abandonment of existing manhole shall be as indicated on the construction plans. The item shall include all labor, materials and equipment necessary to complete the item. The item shall be paid per each.

DROP MANHOLE ASSEMBLY

Payment for drop manhole assembly shall include furnishing and installing all hardware required to assemble a drop as detailed in the plans and specifications. Payment shall be per each.

SANITARY SEWER SERVICE CLEANOUT

Payment for sewer cleanout will be per each to include all labor, materials and equipment at the bid size. Price shall reflect each necessary cleanout as determined by the ENGINEER to provide sanitary sewer service to project area.

SANITARY SEWER SERVICE

Payment for sanitary sewer service will be per linear foot for various diameter pipe. Item shall include pvc pipe, fittings, and other items necessary for a functioning service. Item shall include all labor, equipment and materials necessary to install all equipment. The item shall be per linear foot.

SANITARY SEWER SERVICE TEE

Payment for sanitary sewer service tee will be per each at the bid size and type. Price shall include all labor, materials and equipment necessary to install sanitary sewer service tee based on plans and specifications.

DUCTILE IRON, PVC and HDPE WATER SYSTEMS

Payment for item shall include furnishing and installing all pipe, trenching, compaction of required bedding and backfill excavation, disposal of excess excavated material sheeting, shoring, bracing, dewatering, testing, fittings, reducers, flushing the system and related items not specifically covered under other pay items. The contract price shall be determined by the measured distance of pipe installed and accepted per linear foot.

TRACER WIRE SYSTEM

Installation requirements for tracer wire shall be as indicated on the construction plans. The item shall include all labor, materials and equipment necessary to provide a complete tracer system for the sewer infrastructure with proper grounding and connection points as shown in the plans and specifications. Grounding and hook-up locations shall be absorbed in the price of the tracer wire. The item shall be paid per linear foot.

CONNECTION ITEMS

Payment for connection items shall include installation of reducers, fittings, valve boxes, trenching, excavation, compaction of backfill, blocking, disposal of excess excavated material, sheeting, shoring bracing, dewatering, testing, flushing and related items not specifically covered under other pay items as depicted on the construction plans. Pay shall be determined per each.

GATE VALVES

Payment for installation of gate valves shall include furnishing gate valves, valve boxes, trenching, excavating, compaction of backfill, disposal of excess excavated material, sheeting, shoring, bracing, dewatering, testing, flushing and related items not specifically covered under other pay items as depicted on the construction plans. Pay shall be determined per each.

FIRE HYDRANT WITH APPURTENANCES

Payment for installation of fire hydrant with appurtenance shall include furnishing fire hydrant, gate valve, valve box, piping, trenching, excavating, compaction of backfill, blocking, disposal of excess excavated material, sheeting, shoring, bracing, dewatering, testing, flushing and related items not specifically covered under other pay items. Pay shall be determined per each to include fire hydrant, tees, gate valve, valve box, pipe and other miscellaneous items as required to provide an operational hydrant. Pay shall be determined per each.

REMOVAL OF EXISTING FIRE HYDRANT

Payment for removal of fire hydrant shall include capping/plugging existing service line and removal of the hydrant. Item shall be paid per each.

SERVICE TAP

Payment for service tap shall include all fittings, tubing, tapping saddle, corporation stop, materials, labor and equipment to provide a new water service. Item shall be paid per each.

SERVICE TUBING

Payment for installation of service tubing shall include furnishing and installing service tubing as directed by the ENGINEER. Item shall include all boring, trenching, excavating, compaction of backfill, disposal of excess excavated material etc. to install service tubing as directed. Payment shall be per linear foot measured from each connection point.

RESIDENTIAL METER

Payment for residential meter shall include all components, labor and equipment for a fully operational water meter. Meter shall meet the requirements of the plans and specifications and function fully within the existing system. Item shall include meter, box and any necessary fittings and shall be paid per each.

CRUSHED AGGREGATE

Payment for crushed aggregate shall include furnishing and installing material as specified in the plans and specifications. Crushed aggregate shall be installed as a base material for the pavement repairs. Crushed aggregated may be used for a temporary riding surface and will be the surface of Camp Street throughout the life of the project. Temporary riding surface will be removed prior to pavement repairs and moved to

another location as directed by the engineer at no additional cost to the project. Payment shall be per ton from certified scales.

SELECT FILL MATERIAL

Payment for select fill material will be based on loose vehicular measurement. Haul vehicles shall be measured and volumes calculated. It shall be the discretion of ENGINEER as to the overall percentage full of haul material and that determination shall be final. Item shall include material, haul, placement and testing necessary to meet the plans and specifications.

CONCRETE PAVEMENT REPAIR

Payment for concrete pavement repair shall include furnishing and installing concrete pavement as specified in the plans and specifications. Item shall include forming, material, haul, placement, finishing and testing necessary to meet the plans and specifications. Payment shall be per square yard.

CONCRETE

Payment for concrete shall include furnishing and installing concrete with specified class as specified in the plans and specifications. Item shall include forming, material, haul, placement compaction and testing necessary to meet the plans and specifications. Item shall include reinforcing steel, grates, etc. as necessary and required. Payment shall be per cubic yard.

HOT MIX ASPHALT

Payment for hot mix asphalt shall include furnishing and installing asphalt pavement as specified in the plans and specifications. Item shall include material, haul, placement compaction and testing necessary to meet the plans and specifications. Payment shall be per ton.

CONCRETE SIDEWALK REPAIR

Payment for concrete sidewalk repair shall include furnishing and installing sidewalk to match removed concrete sidewalk. Item shall include saw cutting, forming, material, haul, placement, compaction and testing necessary to meet the plans and specifications. Item shall not be used for damage to sidewalk as a result of poor construction methods or neglect from the contractor. Payment shall be per square yard.

CONCRETE CURB AND GUTTER

Payment for concrete curb and gutter shall include removal, grading, forming, materials, placement, compaction and testing necessary to match existing curb and gutter. Item shall be paid per linear foot.

CONCRETE DITCH REPAIR

Payment for concrete ditch repair shall include removal, grading, forming, materials, placement, compaction and testing necessary to match existing paved ditch. Item shall be paid per square yard.

CLASS "B" CONCRETE, MINOR STRUCTURES

Payment for Class "B" Concrete, Minor Structures shall include grading, forming, materials, placement, compaction and testing necessary to complete the construction as defined in the plans and specification and in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, 2017 edition. Item shall be paid per cubic yard.

REINFORCING STEEL

Payment for reinforcing steel shall include grading, forming, materials, tying, spacing and testing necessary to complete the construction as defined in the plans and specification and in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, 2017 edition. Item shall be paid per pound.

INLET GRATINGS

Payment for inlet gratings shall include casting, materials, installation and testing necessary to complete the construction as defined in the plans and specification and in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, 2017 edition. Item shall be paid per pound.

INLET CASTINGS

Payment for inlet castings shall include casting, materials, installation and testing necessary to complete the construction as defined in the plans and specification and in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, 2017 edition. Item shall be paid per pound.

DRAINAGE PIPE

Payment for all drainage pipe will be per linear foot for various diameter pipe and material type measured from end of pipe to end of pipe installed in relation to the diameter of the pipe.

REMOVAL OF EXISTING PIPE CROSS DRAINS

Payment for removal of existing pipe cross drains shall include removal of all pipe materials from project site. Item shall be as authorized by the engineer. Item shall be paid per linear foot.

REMOVAL, SALVAGE, AND RESET EXISTING FENCE

Payment for removal, salvage, and reset of existing fence shall include removal of all fence materials, storing materials, and installation of materials in a new location as directed by the ENGINEER. Item shall be paid per linear foot.

6" YELLOW THERMOPLASTIC DETAIL TRAFFIC STRIPE

Payment for 6" Yellow Thermoplastic Detail Stripe shall include materials, labor, and equipment for the installation of striping at locations directed by the ENGINEER and in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, latest edition. Item shall be paid per linear foot.

LEGEND WHITE THERMOPLASTIC TRAFFIC MARKING

Payment for Legend White Thermoplastic Traffic Marking shall include materials, labor, and equipment for the installation of striping at locations directed by the ENGINEER and in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, latest edition. Item shall be paid per linear foot.

SOLID SOD

Payment for solid sod shall include furnishing and installing sod, fertilizer, lime and other components required to establish permanent grassing matching existing conditions. Solid Sod shall include final grading prior to installation of sod materials. The unit measurement shall be per square yard.

LANDSCAPE RESTORATION

Payment for Landscape Restoration shall include furnishing and installing of top soil, mulch, plants, fertilizer, watering, final grading and other components required to re-establish landscaping to matching existing conditions. The unit measurement shall be per square foot.

CLEARING AND GRUBBING

Payment for clearing and grubbing shall include removal of all items within the required limits of construction necessary to complete the project based on the construction plans and specifications. Payment shall include off site removal of all items removed during clearing and grubbing. Item shall include all materials, labor and equipment necessary to meet the plans and specifications. Payment shall be per acre.

TEMPORARY EROSION CONTROL

Payment for Temporary Erosion Control shall include furnishing, installing and maintaining hay bales or silt fence as required by current Mississippi Department of Environmental Quality standards. Hay bales and silt fence shall be installed and maintained to prevent erosion under or excess siltation within 24 hours of a rain event. The unit measurement shall be lump sum and includes any required maintenance.

MAINTENANCE OF TRAFFIC

Payment for maintenance of traffic will be lump sum. Item shall include all materials, labor and equipment to maintain traffic based on the current MUTCD or as required by the ENGINEER.

MOBILIZATION

Payment for mobilization shall enable contractor to assemble materials, equipment, etc. on site, to prepare for construction. The unit measurement shall be lump sum. Mobilization shall be paid 50 percent at 5 percent of construction complete and 100 percent at 25 percent of construction complete.

TECHNICAL SPECIFICATIONS

1. Applicable Specifications

The Technical Specifications entitled Mississippi Standard Specifications for Road and Bridge Construction, 2004 Edition shall be the specifications applicable to this project except as for herein specified. Any testing required by those specifications for material submittal approval shall be the responsibility of the Contractor. The testing laboratory used by the Contractor shall be a laboratory certified by the Mississippi Department of Transportation and shall be approved by the Engineer. Any reference to Unit Item for pay shall be modified and paid based on the Measurement and Payment section of the specifications.

2. References Amended to mean Engineer

Any reference in the above mentioned specifications to Commission, Director, Chief Engineer, Testing Engineer, or Project Engineer shall be amended in these specifications to mean the Engineer, or his duly authorized representative, of the City of HATTIESBURG.

SANITARY SEWER SYSTEMS

1.0 GENERAL

This item shall consist of furnishing all of the necessary materials, supervision, labor, tools, equipment and incidentals, and the installation of various types and sizes of sewer pipe and related items in accordance with the Contract Drawings and Specifications, as stated in the Proposal.

2.0 APPLICABLE PUBLICATIONS

The following publications form a part of these Specifications and where referred to by basic designation only, are applicable to the extent indicated. The latest editions of the publications referenced shall apply to the work.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- A 139/139M Electric-Fusion (Arc) Welded Steel Pipe (HPS 4 inch and over).
- A 252 Welded and Seamless Steel Pipe Piles.
- C 31/C 31M Making and Curing Concrete Compressive and Flexural Strength Test Specimens in the Field.
- C 33 Specifications for Concrete Aggregate
- C 39/C 39M Compressive Strength of Cylindrical Concrete Specimens.
- D 1248 Polyethylene Plastics Extrusion Materials for Wire and Cable
- D 1784 Rigid Poly(Vinyl Chloride)(PVC) Compounds and Chlorinated Poly (Vinyl Chloride)(CPVC) Compounds.
- D 2412 Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading.
- D 2922 Density of Soil and Soil Aggregate in place by Nuclear Methods (Shallow Depths).
- D 3034 Specifications for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- D 3212 Joints for Drain and Sewer Plastic Pipes using Flexible Elastomeric Seals.

F 477 Specifications for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

F 794 Poly (Vinyl Chloride)(PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

A21.10 Ductile Iron Fittings, 3 inch through 48 inch for Water and other Liquids.

A21.11 Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.

A21.50 Ductile Iron Pipe, Design Requirements

A21.51 Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-lined Molds, for Water or other Liquids.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

C 104 Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water and Other Liquids.

C 106 Cast Iron Pipe Centrifugally Cast in Metal Molds, for water and other Liquids.

C 110 Ductile Iron Fittings, 3 inch through 48 inch, for Water and Other Liquids.

C 111 Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings.

C 151 Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or other Liquids.

AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS (AASHTO)

T-88 Particle Size Analysis of Soils.

T-89 Determining the Liquid Limit of Soils.

T-90 Determining the Plastic Limit and Plasticity Index of Soils.

T-99 Moisture Density Relations of Soils Using a 5.5 lb. Rammer and 12 inch Drop.

T-191 Density of Soil In-Place by the Sand-Cone Method.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Standard Specifications for Road and Bridge Construction Current Edition.

3.0 SUBMITTALS

The following submittals shall be required for the respective materials used in the work. All submittals shall be submitted through the Contractor to the Engineer.

3.1 Ductile Iron Pipe: The following submittals shall be required for ductile iron pipe systems utilized on the project. The Contractor shall furnish manufacturer's certificates certifying that the pipe and fittings conform to the requirements as specified hereinafter under Article 4.0, Materials. In addition, the submittals shall include the following:

A. Joints: The following shall be required for ductile iron joints.

1. Drawings or Manufacturer's Catalogue data indicating dimensions and tolerance.

2. Gaskets shall be tested in accordance with the respective standards as indicated in ANSI 21.11 and results shall be included in the submittals. Test shall be for similar materials on the gaskets and be not more than one year old.

3. Mechanical Joints: Should the Contractor elect to use mechanical joints in lieu of push-on joints, manufacturer's data shall be submitted in accordance with the "Special Requirements for the Mechanical Joint" as stated in ANSI 21.11 (AWWA C 111).

B. Ductile Iron Pipe Submittal Shall Include the Results of:

1. Tension Test
2. Impact Test
3. Low Temperature Impact Test

Sampling procedure shall be as indicated in ANSI 21.51.

3.2 PVC Pipe: The Contractor shall submit manufacturer's certificate certifying that the pipe and fittings conform to the requirements as specified hereinafter under Article 4.0, Materials. In addition, the Contractor shall submit the following:

A. PVC Piping: PVC Pipe shall be sampled, tested, and inspected in accordance with the provisions of ASTM D3034. Copies of test results shall be attached. Test results shall be similar material and not be more than one-year old from the date of material delivery.

B. Joints: The following submittals shall be required for PVC joints.

1. Certificate with test results for joints for compliance to ASTM D 3212. Gaskets shall conform to ASTM F 477. Test results shall be for similar material and not be more than one-year old.

4.0 MATERIALS

4.1 Gravity Sewer Pipe: Where the type of gravity sewer piping is not indicated on the plans, the Contractor shall furnish polyvinyl chloride (PVC) pipe.

The Contractor shall be restricted to furnishing the exact type of pipe material where indicated on the Contract Drawings.

The Contractor shall be limited to the use of only one type of pipe (so selected by the Contractor and indicated on the Proposal Form) and shall not change the type of gravity sewer pipe except as follows:

1. Where indicated on the plans, or
2. If permitted in writing by the Engineer.

A. Ductile Iron Pipe: Ductile iron shall be designed in accordance with the latest revision of ANSI/AWWA C150/A21.50 for a minimum 50psi.

Ductile Iron Pipe shall be manufactured in accordance with the latest revision of ANSI/AWWA C151/A21.51. Each pipe shall be subjected to a hydrostatic pressure test of at least 500 psi at the point of manufacture.

Pipe shall be standard asphaltic coating on the exterior. Pipe shall also have a Protecto 401 lining on the interior.

The class or nominal thickness, net weight without lining, and casting period shall be clearly marked on each length of pipe. Additionally, the manufacturer's mark, country where cast, year in which the pipe was produced, and the letters "DI" or "Ductile" shall be cast or stamped on the pipe.

All pipe shall be furnished with Push-On Type Joints, such as Tyton or Fastite. Joints shall be in accordance with ANSI/AWWA C111/A21.11, of latest revision, and be furnished complete with all necessary accessories.

Fittings shall be ductile iron. Fittings shall conform to the latest revision of either ANSI/AWWA C600.

B. PVC Pipe : PVC gravity sewer pipe and fittings shall conform to the requirements of ASTM D 3034 with an SDR of 26 and a minimum stiffness of 46 lb./in. - in and 115

lb./in. - in, respectively. Joints for sewer pipe shall be either push-up or mechanical conforming to the requirements of ASTM 3212. Gaskets for sewer pipe shall conform to the requirements of ASTM F 477. Approved adaptors shall be used for making connections between PVC pipe and concrete manholes.

C. Service Laterals: Service laterals for local services shall consist of fittings, pipe lengths, and connections of 6 inch or 4 inch pipe as noted on the plans. The fittings, pipe lengths and plugs shall be of the same material as the run pipe unless otherwise indicated on the Contract Drawings. The modified sewer tees shall be an integral part of the run pipe. The remainder of the branch shall consist of standard fittings (elbows, reducers, and lengths of pipe) in accordance with the manufacturer's standard products and as specified. Pipe lengths and joint connections shall meet the specified requirements for the type materials used.

All service lines shall extend a maximum of up to 5 feet from house fronts of residences and public buildings and up to the property lines of businesses.

4.2 Casing Pipe: Steel pipe utilized as casing at locations shown on the Contract Drawings shall be new round piling pipe conforming to the requirements of ASTM A 252 or A 139. Casing diameter shall be adequate to allow pushing of the specified diameter of sewer pipe or force main and make proper connections at the ends. Minimum Wall Thickness for steel casing is 0.25 inch. (Hwy) and 0.28 inch (RR).

4.3 Wash Gravel Bedding Material: Select Granular material for pipe bedding shall be coarse concrete aggregate. The coarse concrete aggregate shall conform to the gradation sizing Number 467 specified in Table 2 of ASTM Standard Specification C-33. (See Following Table :)

SIZE NO. 467

<u>Nominal Size</u> <u>(Sieves w/Square Openings)</u>	<u>Percent Passing by Weight</u>
2"	100
1 - 1/2"	95 - 100
3/4"	35 - 70
3/8"	10 - 30
No. 4	0 - 5

4.4 Stabilization Material: Stabilization Material shall be a pit run mixture of sand and gravel. The sand shall be hard, sharp and durable particles. All gravel shall pass a 1 - 1/2" sieve.

4.5 Clay Gravel Material: Clay Gravel Material shall meet MDOT Standards Class 6, Group C.

4.6 Concrete: Concrete shall be in accordance with the requirements of Technical Specifications - CONCRETE

4.7 Select Backfill: General: The select material shall be composed of a natural or artificial mixture of sand, silt, clay or soil binder or other material of satisfactory cementing value. The sand shall be hard, sharp, and durable particles, preferably siliceous. The binder shall be a grade of clay or other material having satisfactory cementing qualities and shall be homogenous in character, free from vegetable matter, clay balls or other deleterious substances that cannot be classed as serviceable base material.

A. Gradation: Any coarse aggregate contained in the material shall pass the one and one-half (1-1/2), sieve and not more than thirty-five percent (35%) shall be retained in the Number 10 sieve. The plasticity index (P.I.) shall not exceed 12, nor shall the liquid limit exceed 30.

The composite selected sand-clay material passing the Number 10 sieve shall conform to the following minimum and maximum gradation limits:

<u>Sieve</u>	<u>Percent Passing by Weight</u>
Number 40	40 - 85
Number 60	30 - 70
Number 270	8 - 30
Silt (.05 to .005 mm)	3 - 15
Clay (Passing .005 mm)	3 - 15

4.8 Backfill: All other backfill shall consist of excavated material removed from the trench unless otherwise directed by the Engineer. CONTRACTOR shall separate poor and acceptable material during excavation. Failure to separate material shall require CONTRACTOR to furnish acceptable backfill at no additional cost to the project.

5.0 CONSTRUCTION:

5.1 Earthwork:

A. Site Preparation: Topsoil shall be stripped and stockpiled in accordance with Technical Specifications - Restoration of Roads, Driveways, Fences, Lawns, and other Grassed Areas.

All vegetation such as brush, heavy sod, heavy growth of grass, decayed vegetative matter, rubbish and any other unsuitable material within the area of

trenching shall be stripped or otherwise removed before the trenching is started, and in no case, shall such objectionable material be allowed in the trench.

Stripping operation shall be to a depth of not less than 6 inches in all cases.

B. Asphalt or Concrete Removal: Before trenching operations begin, the existing asphalt or concrete pavement shall be cut to full depth to give a straight vertical edge when removed. The asphalt or concrete shall be disposed of offsite by the Contractor. While removing the asphalt or concrete in the trench line, never shall the adjacent asphalt be raised or pulled from its base.

C. Trenching: The Contractor shall determine all requirements for trench dimensions, alignment, and grades. The trench shall be excavated in conformance with all federal, state and local regulations for the protection of the workmen. Shoring, sheeting and/or a moveable form shall be used as required to provide earth stability during the laying operations.

The final excavation of the trench for the pipe installation shall be as indicated on the Plans. Minor variations in horizontal (within the permanent easement) or vertical alignment during construction shall be made during construction (with the Engineer's approval) to facilitate ease of installation and operation (due to potential conflicts; i.e., utility conflict) at no additional cost to the Owner except for additional piping, if any. The trench from the top of the pipe down to the bottom of the bedding shall be of a consistent width as indicated on the plans. Should the excavated width of the trench be larger than the design width, the Engineer may direct that a higher type or class of bedding be used; or other adjustments be made to increase the load carrying capacity of the pipe.

The Contractor shall not excavate more trenches in advance of pipe laying than is necessary to perform the work efficiently. No more than 100 feet of open trench shall be allowed unless approved by the Engineer.

Excavated material shall be placed in a manner that will not obstruct sidewalks, driveways, or other structures. Excavated material shall not be placed so as to surcharge the walls and jeopardize trench stability.

If adequate area is not available on the construction site, the CONTRACTOR will be required to stockpile material off site. Owner shall not bear any additional expense.

Ledge Rock, boulders and large stones shall be removed to provide a minimum clearance of 4 inches (10 cm) below and on each side of all pipes.

D. Disposal: The Contractor shall satisfactorily dispose of all excess earth from excavations either in approved (by the Engineer) areas within the construction limits or away from the project in disposal sites obtained by the Contractor.

The Contractor will be permitted to mound excess earth over the trench to a maximum depth of 12 inches above the original ground surface or finished grade where the trench is located in unimproved property. Wasting of excess excavated material will not be permitted within any road ROW. All material within the construction limits shall be placed so that natural drainage is maintained and the surface shall be graded to a smooth and uniform appearance. The disposal of waste and excess excavating materials, including hauling, handling, grading, and surfacing shall be subsidiary obligation of the contractor and no separate payment will be made. Therefore, the cost of such work shall be included in the Contract Unit Price for installation of sewer pipe.

E. Dewatering: The site shall be kept free of surface water at all times. The Contractor shall install drainage ditches and dikes and shall perform all pumping and other work necessary to divert or remove rainfall and other accumulations of surface water from the excavations. The diversion and removal of surface water shall be performed in a manner that will prevent the accumulation of water behind temporary structures or at any other locations within the construction area where it may be detrimental. The Contractor shall provide, install, and operate sufficient trenches, sumps, pumps, hoses, piping, well points, deep wells, etc., necessary to depress and maintain the ground water level at least one foot below the base of the excavation during all stages of construction operations. The ground water table shall be lowered in advance of excavation and maintained a minimum of one foot below the lowest excavation sub grade made until the structure has sufficient strength and weight to withstand horizontal and vertical soil and water pressures.

Where groundwater is encountered, the Contractor shall make the effort necessary to secure a dry trench bottom before laying pipe. In sandy and in other suitable type soils, dewatering shall be done by well pointing. If, in the opinion of the Engineer, the Contractor has failed to obtain an absolutely dry trench bottom by insufficient use of all known methods of trench dewatering, the Engineer may order the Contractor to excavate below grade and place not less than 6 inches of graded crushed stone fill material over the trench bottom to form trench drains to suitably located sumps and to remove the water by bailing or pumping. The graded crushed stone fill material shall be placed at the Contractor's own expense and shall be of such depth that there shall be not water in bell holes at the time of coupling pipe. All costs of equipment, labor, and materials required for dewatering shall be included in the pipe laying operation.

F. Bedding: The Contractor shall satisfactorily shape the trench area (to specified line, grade and cross section) to receive bedding material. The bottom of the trench shall be undisturbed soil. Should the Contractor over excavate the trench without direction from the Engineer, the trench shall be brought up to grade with select backfill and compacted to at least 90% of maximum laboratory density as measured by AASHTO T 99. Such additional work and materials for over excavation without direction of the Engineer shall be at the expense of the Contractor.

Holes for the bells shall be provided at each joint in the sub grade or in the

granular fill bedding material as required. The holes shall be no larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the material. The Contractor shall install the proper bedding for the respective type of pipe and depth of installation as shown in the details and schedules on the plans. When depths vary in a particular manhole run, the Contractor shall change bedding systems in accordance with the depth installation requirements.

1. Stabilization Materials: When the sub grade is found to be unstable or to include ashes, refuse, organic material, or other unsuitable material, the Engineer may direct that the subgrade be over excavated to remove such material. The depths of over excavation shall be as directed by the Engineer. Stabilization material shall be placed into the over excavated area of the trench and shall be paid for in accordance with these specifications. Stabilization shall be compacted to at least 90% of maximum laboratory density in six-inch lifts.

2. Bedding Materials: As detailed in the plans, bedding material shall be placed to the specified depth below the pipe and tamped to a minimum of 90% of maximum laboratory density as determined in accordance with AASHTO T 99. Following placement of pipe, additional bedding material shall be placed and consolidated under the haunches of the pipe. Special tools shall be required to work the material into place and leave no voids beneath the pipe. The bedding material shall be tamped along the spring line (or along the top of the bedding material as indicated) of the pipe to sufficiently compact the material insofar as practical.

The Engineer may direct additional moisture be added to the bedding material to aid in the compaction effort. Mechanical tampers may be employed to aid the process. Depending on the particular bedding required, additional bedding shall be added and tamped to a minimum of 90% of maximum laboratory density, with AASHTO T-99.

3. Select Backfill: Select backfill shall be placed in 6 inch lifts and tamped to a minimum laboratory density with AASHTO T-99. Overall depth of the select backfill shall be as directed by the Engineer.

4. Normal Condition Bedding: Under normal conditions the trench bottom shall be undisturbed earth shaped to the specified line, grad, and cross section with proper bell holes at each joint to ensure that pipe barrel lies flat on trench bottom. The bedding material will be selected native materials excavated from the trench and placed in two lifts. The first lift being placed up to the spring line of the pipe and extending out to the trench walls and hand tamped to a minimum of 90% of maximum laboratory density. Special care shall be used in placing and tamping bedding to insure no voids under the haunches of the pipe. The second lift shall extend to approximately 6" above pipe (Material permitting) and hand tamped to 90% density.

5. Backfilling: Upon completion of placement of select material the excavated materials shall be immediately placed back into the trench. Specific requirements are:

a. Backfill requirements for road crossings, parking lots, driveways, and sidewalks shall be in accordance with Technical Specifications - RESTORATION OF ROADS, DRIVEWAYS, FENCES, LAWNS, AND OTHER GRASSED AREAS.

b. Backfill requirements for unimproved areas (pastures, wooded areas) shall consist of placement and shaping of the soil in such a manner as to allow maximum natural consolidation. No compaction of the general backfill in the unimproved areas will be required, except that caused by conventional shaping equipment.

c. No debris shall be used as backfill which has a volume in excess of one-half of one cubic foot or a weight excess of 75 pounds.

6. Sheeting Removal: Wooden sheeting or other thick sheeting or shoring members which have been driven or otherwise placed along the trench walls to an elevation below the spring line of the pipe shall be cut off at the spring line or higher and left in place.

7. Grading and Grassing: Final grading and grassing shall be in accordance with Technical Specifications - RESTORATION OF ROADS, DRIVEWAYS, FENCES, LAWNS, AND OTHER GRASSED AREAS.

5.2 PIPE HANDLING AND STORAGE: Pipe shall be handled, staked, and stored in accordance with manufacturer's printed literature. The Contractor shall provide security as required to prevent damage by vandals. PVC pipe shall be shaded from sunlight for extended lengths of time. Pipe damaged during storage and handling shall be rejected.

5.3 PIPE LAYING: Pipe laying shall proceed upgrade with the spigot ends of the bell-and-spigot pipe and tongue ends of the tongue and groove pipe jointing in the direction of flow. Each pipe shall be laid true to line and grade and in such a manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow line. As the work progresses, the interior of the sewer shall be cleared of all dirt and superfluous materials of every description. Where cleaning after laying is difficult because of small pipe size, a suitable swab or drag shall be kept in the pipe and pulled forward past each joint immediately after the jointing has been completed. Trenches shall be kept free of water and pipe shall not be laid when the condition of the trench or the weather is unsuitable for such work. At times when work is not in progress, open ends of pipe and fittings shall be securely and satisfactorily closed so that no trench water, earth or other substance will enter the pipe or fittings.

Pipe laying shall be performed in such a manner that no foreign material enters the pipe. The Engineer may require that before lowering pipe, heavy canvas bags be placed over each end, and left in place until joints are ready to be made. If water is in the trench, the seals shall remain in place until the trench is pumped completely dry. If conditions

are unsuitable, no pipe shall be laid until satisfactory laying conditions are obtained in accordance with the above specified requirements.

The Contractor shall utilize a commercial grade laser beam specifically manufactured to aid in maintaining grade and alignment of pipelines during installation. The primary unit shall be mounted on a heavy-duty base and firmly anchored in the downstream manhole of the reach under construction. The maximum distance shall not exceed four hundred feet (400') per set-up.

Each joint of pipe shall be installed using an approved target to align the pipe with the projected laser beam. The methods and procedures shall be in strict accord with the manufacturer's recommendations and instructions. Proper ventilation shall be maintained at all times. Care shall be exercised in order to prevent bumping or misalignment of the projected beam. Sewer lines shall be laid such that the installed variation of invert elevations when compared with the construction plans does not exceed 0.05 feet. Sewer lines in which said variation exceeds 0.05 feet may be rejected. Sewer pipe shall be visually inspected for alignment by lamping, televising or by other appropriate means to determine alignment.

Whenever a movable steel box is used in place of sheeting, the Contractor shall take care to prevent the pipe from moving when the steel box is moved.

5.4 PIPE JOINTING: Piping shall be jointed in accordance with the manufacturer's printed recommendations. Gaskets shall be firmly set within the bells and grooves as required. The manufacturer's recommended lubricant or an approved equal shall be applied for slip type joints.

A. PVC Pipe Joint Construction: The bell and spigot ends of PVC sewer pipe shall be cleaned of all foreign material that could interfere with proper assembly of the joints. The spigot ends shall be cleaned one inch (1") beyond the joint assembly reference mark.

The spigot end of the pipe shall be thoroughly lubricated in accordance with the manufacturer's recommendations. The coating should be the equivalent of a brush coat of enamel paint and maybe applied by hand, cloth, pad sponge or glove.

The lubricated spigot end shall be inserted into the bell keeping the pipe length in proper alignment. The bell shall be braced while the spigot end is pushed in under the rubber ring, so that previously completed joints in the line will not be closed up. The spigot end shall be pushed into the bell until the reference mark is flush with the end of the bell.

Generally, the installation and jointing of PVC Pipe shall conform to the requirement so the latest edition of ASTM D-2321, "Underground Installation of Flexible Thermoplastic Sewer Pipe".

B. Ductile Iron Pipe Joint Construction: The installation and jointing of ductile iron pipe and shall generally conform to the applicable provisions of AWWA Standard Specifications C-600 for pipe laying.

Where mechanical joint pipe is used, the surfaces which come in contact with the gasket shall be thoroughly brushed with a wire brush just prior to assembly. The gasket should be brushed with soapy water prior to installation to remove loose dirt and to lubricate gasket as it is forced into its retaining space.

When tightening bolts, it is essential that the gland be brought up toward the pipe flange evenly. The bolts should be partially tightened; the bottom bolt first, then the top; next the bolts on either side; and last, the remaining bolts. Overstressing of bolts to compensate for poor installation will not be permitted. Bolt torque shall be in accordance with manufacturer's specifications.

All joints of whatever type shall be completely water tight after being subjected to the required tests.

C. Jointing Dissimilar Pipes: Suitable adaptor couplings are required for connecting dissimilar pipes. The couplings shall be approved by the Engineer before installation.

5.5 SERVICE LATERALS (LINES): Modified sewer tees shall be installed on the run pipe at the appropriate field locations. Service lines of the sizes specified shall be laid to a uniform grade so that the customer being served can be tied-in using good construction practices. All tamping and backfilling operations shall be performed the same as on main line pipe. Removable plugs shall be securely installed in pipe ends and a 2" x 2" treated post extending 12" above the ground line shall mark the pipe end location.

5.6 RELATION TO WATER MAINS:

A. Horizontal Separation: Whenever possible, sewers should be laid at least 10 feet, horizontally, from any existing or proposed water main. Should local conditions prevent a lateral separation of 10 feet, a sewer may be laid closer than 10 feet to a water main if:

1. It is laid in a separate trench.
2. It is laid in the same trench with the water mains located at one side on a bench of undisturbed earth.
3. In either case the elevation of the crown of the sewer is at least 18 inches below the invert of the water main.

B. Vertical Separation: Whenever sewers must cross under water mains, the sewer

shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be buried to meet the above requirement, the water main shall be relocated to provide this separation or reconstructed with slip-on or mechanical-joint ductile iron pipe, or prestressed concrete cylinder pipe for a distance of 10 feet on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.

C. Special Conditions: When it is impossible to obtain proper horizontal and vertical separation as stipulated above, the water main should be constructed of slip-on or mechanical-joint ductile iron pipe. Or prestressed concrete cylinder pipe and the sewer constructed of mechanical-joint ductile iron pipe and both services should be pressure tested to assure water tightness.

5.7 CONTINUATION OF SERVICE

The existing wastewater system shall remain in operation during the duration of the project. Should removal of facilities from operation become necessary, a plan which will avoid or minimize pollution effects on any receiving stream and provide alternate service for wastewater facilities shall be reviewed and approved in advance by the Mississippi Department of Environmental Quality and shall be adhered to during construction.

6.0 TESTING

6.1 PVC PIPING: Material test shall be conducted during the manufacturing process and the results shall be included as part of the submittal. No other material test shall be required.

6.2 BEDDING MATERIAL AND STABILIZATION MATERIAL: Test for gradation and test for material passing the No. 40 sieve shall be as follows:

Gradation	- AASHTO T 88
Liquid Limit	- AASHTO T 89
Plasticity Index	- AASHTO T 90

One set of each test listed above will be required for every 500 cubic yards or major fraction thereof.

6.3 COMPACTION TESTS: Compaction tests shall be performed in accordance with AASHTO T 191 or ASTM D 2922. Maximum compaction shall be determined in accordance with AASHTO T99. Compaction tests for sewer pipe related work shall not be less than as follows:

	(Number of Compaction Tests)		
	AASHTO T-99	AASHTO T-191	or
ASTM D 2922			
Select Backfill Material OR			
Stabilization Material	1	One per 100 CY	
Bedding Material	2	One per 600 LF	
Tamped Backfill	2	One per 600 LF	

6.4 INFILTRATION/EXFILTRATION TEST: The Contractor shall provide all plugs, water supply, measuring devices, and all other equipment, material, labor and supervision to measure the infiltration and exfiltration tests as specified below. The Contractor shall perform the test in the presence of the Engineer. All gravity sewer pipe shall be tested in accordance with the following applicable requirements.

A. Infiltration Test: The infiltration test shall be conducted between adjacent manholes. The outlet pipe on the downstream manhole shall be plugged and tested for water tightness to the satisfaction of the Engineer. The accumulated depth of water in the downstream manhole shall be read at 12 hour intervals for two (2) days and the infiltration rate calculated from the data obtained. Any section exceeding an infiltration rate of 200 gallons/day/inch diameter/mile shall be relayed at the Contractor's expense. This means that the Contractor shall locate and repair leaks as necessary to pass the infiltration test. Infiltration test shall be utilized only when ground water is above pipe.

B. Exfiltration Test: The exfiltration test shall be conducted between adjacent manholes. The inlet pipes in the downstream and upstream manholes shall be plugged. The line being tested shall be filled with water until water depth becomes two (2) feet above top of pipe being tested in the upstream manhole. The water loss shall be measured in the upstream manhole at 12 hour intervals for two (2) days and the exfiltration rate calculated from the data obtained. Any section exceeding an exfiltration rate of 200 gallons/day/inch diameter of pipe/mile shall fail the test. The Contractor shall locate and repair leaks as necessary to pass the exfiltration test. A low-pressure air test conforming to ASTM C-828-80 or latest revision may be used in lieu of the exfiltration test.

6.5 DEFLECTION TESTS: 100% of the PVC gravity sewer shall be tested 30 days after the final backfill has been in place by the following method:

Use a "Go-, no-go" mandrel which is sized to such dimensions that it will not "go" when encountering a deflection greater than 5%. The instructions for its use are as follows:

A. Completely flush the line making sure the pipe is clean of any mud or debris that would hinder the passage of the mandrel.

B. During the final flushing of the line, attach a floating block or ball to the end of the mandrel, pull rope and float the rope through the line. (A) nylon ski rope is recommended)

C. After the rope is threaded through the line, connect the pull rope to the mandrel and place the mandrel in the entrance of the pipe.

D. Connect a retrieval rope to the back of the mandrel to pull it back if necessary.

E. By hand, remove all the slack in the pull rope and place a tape marker on the top at the end of the pipe where the mandrel will exit, determining the location of the mandrel in the line.

F. By hand, draw mandrel through the sewer lines. If any irregularities or obstructions are encountered in the line, they shall be corrected by the Contractor.

G. If a section with excessive deflection is found, locate it; dig down and uncover the pipe; if any damaged pipe is found, replace it; if pipe is not damaged, replace and thoroughly tamp haunching and initial backfill; replace remainder of backfill.

H. Re-test this section for deflection.

Sewer/Water Utility – Trace Wire Specification

1.0 General

All trace wire shall have HDPE insulation intended for direct bury, color coated per APWA standard for the specific utility being marked. THHN is prohibited from use in the tracer wire system.

All trace wire, test stations and accessories shall be supplied by a single manufacturer and domestically made in the USA.

All tracer wire and accessories shall be installed per plan details and per manufacturers recommended installation methods. All wire and connectors shall be rated for direct bury applications.

2.0 Materials

Copper Clad Steel (CCS) Trace Wire

Open Trench – 12 Gauge Copper Clad Steel with a Break Load of 452 pounds

Directional Drilling - 12 Gauge Copper Clad Steel with a Break Load of 1,150 pounds

Connectors

2-Way Splice Connector with Strain Relief

3-Way Connector

Termination/Access/Test Stations

Non-Roadway: Equal to Copperhead LD14TP

Concrete / Driveway: Equal to Copperhead CD14TP

Roadway: Equal to Copperhead RB14TP

Fire Hydrant: Equal to Copperhead T2-FLPKG

Grounding

Magnesium Anode: Equal to Copperhead ANO-12

3.0 Testing

All new trace wire installations shall be located using typical low frequency (512Hz) line tracing equipment, witnessed by the contractor, engineer and facility owner as applicable, prior to acceptance of ownership.

This verification shall be performed upon completion of rough grading and again prior to final acceptance of the project. Continuity testing in lieu of actual line tracing shall not be accepted.

4.0 Connectors

All mainline trace wires must be interconnected in intersections, at mainline tees and mainline crosses. At tees, the three wires shall be joined using a single 3-way lockable

connector. Connectors shall be dielectric silicon filled to seal out moisture and corrosion, and shall be installed in a manner so as to prevent any uninsulated wire exposure.

Non-locking friction fit, twist on or taped connectors are prohibited.

5.0 Termination/Access/Test Stations

All trace wire termination points must utilize an approved tracer wire access box, specifically manufactured for this purpose or as detailed on the plans

All grade level/in-ground access boxes shall be appropriately identified with “sewer” or “water” cast into the cap and be color coded (blue – water / green – sewer).

Test stations at dead ends shall be two-terminal.

Test stations in between dead ends shall be single terminal.

A minimum of 2 ft. of excess/slack wire is required in all trace wire access boxes after meeting final elevation.

Grounding anode wire shall be connected to the identified (or bottom) terminal on all access boxes.

Hydrants – Trace wire must terminate at an approved above-ground trace wire access box, properly affixed to the hydrant grade flange.

6.0 Grounding

Trace wire must be properly grounded at all dead ends/stubs.

Grounding of trace wire shall be achieved by use of a drive-in magnesium grounding anode rod with a minimum of 20ft of #12 red HDPE insulated copper clad steel wire connected to anode specifically manufactured for this purpose, and buried at the same elevation as the utility.

Where the anode wire will be connected to a trace wire access box, a minimum of 2 ft. of excess/slack wire is required after meeting final elevation.

7.0 Sanitary Sewer System

A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point.

Lay mainline trace wire continuously, by-passing around the outside of manholes/structures on the North or East side.

Trace wire on all sanitary service laterals must terminate at the cleanout and located directly above the service lateral at the edge of road right of way as detailed in the plans.

8.0 Water System

A mainline trace wire must be installed, with all service lateral trace wires properly connected to the mainline trace wire, to ensure full tracing/locating capabilities from a single connection point.

Lay mainline trace wire continuously, by-passing around the outside of valves and fittings on the North or East side.

Trace wire on all water service laterals must terminate at an approved trace wire access box color coded blue and located directly above the service lateral at the edge of road right of way.

Above-ground tracer wire access boxes will be installed on all fire hydrants.

All conductive and non-conductive service lines shall include tracer wire.

9.0 Installation

Trace wire systems must be installed as a single continuous wire, except where using approved connectors. No looping or coiling of wire is allowed.

Trace wire shall be installed at the bottom half of the pipe and secured (taped/tied) at 5' intervals.

Trace wire on all service laterals/stubs must terminate directly above the utility, at the edge of the road right-of-way, but out of the roadway.

At all mainline dead-ends, trace wire shall go to ground using an approved connection to a drive-in magnesium grounding anode rod, buried at the same depth as the trace wire.

Mainline trace wire shall not be connected to existing conductive pipes. Treat as a mainline dead-end, ground using an approved waterproof connection to a grounding anode buried at the same depth as the trace wire.

All service lateral trace wires shall be a single wire, connected to the mainline trace wire using a mainline to lateral 3-way connector, installed without cutting/splicing the mainline trace wire.

In occurrences where an existing trace wire is encountered on an existing utility that is being extended or tied into, the new trace wire and existing trace wire shall be connected using approved splice connectors, and shall be properly grounded at the splice location as specified.

Trace wire on all water service laterals must terminate at an approved trace wire access box color coded blue and located directly above the service lateral at the edge of road right of way.

Above-ground tracer wire access boxes will be installed on all fire hydrants.

All conductive and non-conductive service lines shall include tracer wire.

WATER SYSTEMS

1) GENERAL

- a) This item shall consist of furnishing all of the necessary materials, supervision, labor, tools, equipment and incidentals, and the installation of various types and sizes of water pipe and related items in accordance with the contract drawings and specifications, as stated in the Proposal.

2) APPLICABLE PUBLICATIONS

- a) The following publications form a part of these specifications and where referred to by basic designation only, are applicable to the extent indicated. The latest editions of the publications referenced shall apply to the work.

- i) AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- A 139 Electric-Fusion (Arc) welded steel pipe (sizes 4 inch and over).

- A 252 Welded and Seamless steel pipe piles.

- C 31 Making and Curing Concrete Compressive and Flexural Strength Test Specimens in the Field.

- C 33 Concrete Aggregates

- C 39 Test for Compressive Strength of Cylindrical Concrete Specimens.

- D 2922 Density of Soil Aggregate in place by the clear Method (shallow depths).

- ii) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- 21.10 Gray Iron and Ductile Iron Fittings, 3 inch through 48 inch for Water and other Liquids.

- 21.11 Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings.

- 21.50 Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-line Molds, for Water or other Liquids.

iii) AMERICAN WATER WORKS ASSOCIATION (AWWA)

C 104 Cement-Mortar Lining for Cast Iron Pipe and Fittings for Water and Other Liquids.

C 106 Cast Iron Pipe Centrifugally Cast in Metal Molds, for water and other Liquids.

C 110 Gray Iron and Ductile Iron Fittings, 3 inch through 48 inch, for Water and Other Liquids.

C 111 Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings.

C 150 Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or other Liquids.

iv) AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS (AASHTO)

T-88 Particle Size Analysis of Soils.

T-89 Determining the Liquid Limit of Soils.

T-90 Determining the Plastic Limit and Plasticity Index of Soils.

T-99 Moisture Density Relations of Soils Using a 5.5 lb. Rammer and 12 inch Drop.

T-191 Density of Soil In-Place by the Sand-Cone Method.

v) MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Standard Specifications for Road and Bridge Construction 1990 Edition.

3) **SUBMITTALS**

a) The following submittals shall be required for the respective materials used in the work. All submittals shall be submitted through the Contractor to the Engineer.

i) Ductile Iron Pipe: The following submittals shall be required for ductile iron pipe systems utilized on the project. The Contractor shall furnish

manufacturer's certificates certifying that the pipe and fittings conform to the requirements as specified hereinafter under Article 4.0, Materials. In addition, the submittals shall include the following:

- (1) Joints: The following shall be required for ductile iron joints.
- (2) Drawings or Manufacturer's Catalogue data indicating dimensions and tolerance.
- (3) Gaskets shall be tested in accordance with the respective standards as indicated in ANSI 21.11 and results shall be included in the submittals. Test shall be for similar materials on the gaskets and be not more than one year old.
- (4) Mechanical Joints: Should the Contractor elect to use mechanical joints in lieu of push-on joints, manufacturer's data shall be submitted in accordance with the "Special Requirements for the Mechanical Joint" as stated in ANSI 21.11 (AWWA C 111).

ii) Ductile Iron Pipe Submittal Shall Include the Results of:

- (1) Tension Test
- (2) Impact Test
- (3) Low Temperature Impact Test
Sampling procedure shall be as indicated in ANSI 21.51.

b) PVC Pipe: The Contractor shall furnish manufacturer's certificates certifying that the pipe and fittings conform to the requirements of these specifications and appropriate construction drawings.

4) **MATERIALS - WATER SYSTEM**

a) Ductile Iron Pipe:

- i) Ductile iron pipe shall be designed in accordance with the latest revision of ANSI/AWWA C51/A21.51), rated working pressure of 350 psi plus a 100 psi surge allowance; a 2 to 1 safety factor on the sum of working pressure plus surge pressure in Type 3 laying condition with a depth of cover as required per plans.
- ii) Pipe shall have standard asphaltic coating on the exterior. Pipe also shall have a cement mortar lining on the interior in accordance with the latest revision of ANSI/AWWA C104/A21.4. If corrosion protection is required,

polyethylene encasement shall be installed prior to the pipes installation in accordance with ANSI/AWWA C105/A21.5-88.

- iii) All non-restrained pipe shall be furnished with push-on type joints such as "Fastite," or equal. Joints shall be in accordance with the latest revision of ANSI/AWWA C111/A21.11 and shall be furnished complete with all necessary accessories.
- iv) Where restrained joint pipe is required, "Fast Grip", "Flex-Ring", or "Field Flex-Ring" or approved equal shall be used. The length of restrained pipe shall be as tabulated or noted on the plans.
- v) Ductile iron fittings shall conform to the latest revisions of either ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53. Fittings, linings, and coatings shall be as specified for the pipe above.
- vi) All pipe, fittings and accessories shall be installed and tested in accordance with the latest revision of AWWA C600. Newly installed ductile iron water mains shall be disinfected in accordance with the latest revision of AWWA C651 prior to placing in service.

b) PVC Pipe

- i) PVC pipe for this project shall be PVC, C-900, Class 200. This standard covers the installation of Pressure Class 100, 150 and 200 PVC pipe complying with AWWA Standard C-900-89. PVC pipe shall bear the National Sanitation seal for potable water.
- ii) The pipe shall be equipped with a push on joint in a single elastomeric gasketed joint. It is assembled by positioning the elastomeric gasket in the annular groove of the bell and inserting the spigot end of the pipe into the bell. The spigot end of the pipe compresses the gasket radially to form a positive seal. The gasket and annular groove are designed, sized and shaped so that the gasket will resist displacement. Care shall be taken so that only the correct elastomeric gasket, compatible with the annular groove of the bell, is used. Insertion of the elastomeric gasket in the annular groove of the bell must be in accordance with the manufacturer's recommendations.

c) Gate Valves:

- i) Where indicated on the Plans or directed by the ENGINEER, the CONTRACTOR shall furnish and install gate valves as hereinafter specified.
- ii) All gate valves shall be cast iron mechanical joint, Mueller A-2360, equivalent or better. All gate valves shall be furnished with O-ring packing and 2" square

operating nut, AWWA 200lb., for cast iron water main.

- iii) Valve boxes shall be cast iron top and bottom. Extension pieces shall be provide as required.
- iv) Payment for furnishing and installing gate valves with box shall be made at the contract unit price per valve according to type and size as listed in the proposal.
- v) All valves will be set at a perfect 90 degree angle from level pipe, (perpendicular) so as to be easily accessible through properly set valve box as per specifications above.
- vi) The CONTRACTOR shall furnish and install either a two-piece or three-piece, slip type, cast iron valve box over each gate valve. Valve boxes will be set over valve operating nut, centered so as to be easily accessible with a valve operating wrench or key. They will be set to correspond with the finished grade of street, lot, or easement. No dirt will be left in box; box will not rest directly on valve body.

d) Fittings, Valves and Hydrants, etc.

- i) All fittings, valves and valve boxes, hydrants, and other appurtenances are to be set at the points indicated on the plans, or as directed by the ENGINEER, and omission to do so shall be corrected by the CONTRACTOR without extra cost to the OWNER.
- ii) All fittings shall either be Ductile Iron Compact (ANSI/AWWA C153/A21.53) or Cast Iron (ANSI/AWWA-C110/A21-10) and shall have mechanical joint ends and mechanical joint restraints (Series 1120) and shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist-off nuts shall be used to insure proper actuating of the restraining devices.
- iii) The mechanical joint restraint device shall have a working pressure of a least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron., MEGALUG or equal.

- iv) To improve the sealing capacity, the gaskets for all mechanical joints conforming to the requirements of ANSI/AWWA C110/A/21.10, C111/A21.11, or C153/A21.53 shall be of a design that causes the gasket to deflect approximately 30% during assembly of the mechanical joint. The gasket material shall conform to the requirements of ANSI/AWWA C111/A21.11, Section 1-6.4 of the latest revision. Mechanical joint gaskets shall be EBAA Iron's EBAA Seal- Improved Mechanical Joint Gasket or approved equal.
- v) Fittings (bends, tees, plus, and caps) shall be securely braced by mechanical joint restraints, as indicated on the Plans, to prevent the possibility of blowing off under pressure. And a full length of pipe shall be installed on each end of the fitting. Then cut pieces can be installed beyond the full lengths of pipe.
- vi) The prices bid furnishing and installing valves, fittings, etc., shall include compensation for furnishing mechanical joint restraints as required at beds, tees, plugs and caps. No separate or extra compensation will be allowed for any of the above specified incidental work or material.

e) Plugs and Caps

- i) Where indicated on the Plans, or as directed by the ENGINEER, the CONTRACTOR shall install plugs for anticipated future extensions by placing a branch fitting (tee or cross) in the line and plugging the unused branch or branches. In general, such plugs will be located at street intersections where present plans provided lines running in only two or three directions from the intersections and where, in the opinion of the ENGINEER, a connection may be required for future extension. Where "deadend" lines are installed, the ends of such lines shall be plugged or capped as required.
 - ii) For the various hot taps required according to the plans, and up to 12 inches, the JCM 432, stainless Tapping Sleeve shall be required. The CONTRACTOR shall furnish all materials for these various taps and the OWNER will actually make the tap.
- f) Casing Pipe: Steel pipe utilized as casing at locations shown on the Contract Drawings shall be new round piling pipe conforming to the requirements of ASTM A 252 or A 139. Casing diameter shall be adequate to allow pushing of the specified diameter of water pipe and make proper connections at the ends. Minimum Wall Thickness for steel casing is 0.375 inch.
- g) Wash Gravel Bedding Material: Select Granular material for pipe bedding shall be coarse concrete aggregate. The coarse concrete aggregate shall conform to the gradation sizing Number 467 specified in Table 2 of ASTM Standard Specification C-33. (See Following Table.)

SIZE No. 467

Nominal Size (Sieves w/Square Openings)	Percent Passing by Weight
2"	100
1-1/2"	95–100
3/4"	35–70
3/8"	10–30
No. 4	0–5

- h) Stabilization Material: Stabilization Material shall be a pit run mixture of sand and gravel. The sand shall be hard, sharp and durable particles. All gravel shall pass a 1 - 1/2" sieve.
- i) Concrete: Concrete shall be in accordance with the requirements of Technical Specifications – CONCRETE.
- j) Select Backfill
- i) General: The select material shall be composed of a natural or artificial mixture of sand, silt, clay or soil binder or other material of satisfactory cementing value. The sand shall be hard, sharp, and durable particles, preferably siliceous. The binder shall be a grade of clay or other material having satisfactory cementing qualities and shall be homogenous in character, free from vegetable matter, clay balls or other deleterious substances that cannot be classed as serviceable base material.
- ii) Gradation : Any coarse aggregate contained in the material shall pass the one and one-half (1-1/2); sieve and not more than thirty-five percent (35%) shall be retained in the Number 10 sieve. The plasticity index (P.I.) shall not exceed 12, nor shall the liquid limit exceed 30.
- iii) The composite selected sand-clay material passing the Number 10 sieve shall conform to the following minimum and maximum gradation limits:

Sieve	Percent Passing by Weight
Number 40	40–85
Number 60	30–70
Number 270	8–30
Silt (.05 to .005 mm)	03–15

Clay (Passing .005 mm)	3--15
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- iv) Backfill: All other backfill shall consist of excavated material removed from the trench.

5) CONSTRUCTION

a) Earthwork

i) Site Preparation:

- (1) Topsoil shall be stripped and stockpiled in accordance with Technical Specifications - Restoration of Roads, Driveways, Fences, Lawns, and other Grassed Areas.
- (2) All vegetation such as brush, heavy sod, heavy growth of grass, decayed vegetative matter, rubbish and any other unsuitable material within the area of trenching shall be stripped or otherwise removed before the trenching is started, and in no case shall such objectionable material be allowed in the trench.
- (3) Stripping operation shall be to a depth of not less than 6 inches in all cases.

- b) Asphalt or Concrete Removal: Before trenching operations begin, the existing asphalt or concrete pavement shall be scored or cut to a proper depth to give a straight vertical edge when removed. The asphalt or concrete shall be disposed of offsite by the Contractor. While removing the asphalt or concrete in the trench line, never shall the adjacent asphalt be raised or pulled from its base.

c) Trenching:

- i) The Contractor shall determine all requirements for trench dimensions, alignment, and grades. The trench shall be excavated in conformance with all federal, state and local regulations for the protection of the workmen. Shoring, sheeting and/or a moveable form shall be used as required to provide earth stability during the laying operations.
- ii) The final excavation of the trench for the pipe installation shall be as indicated on the Plans. Minor variations in horizontal (within the permanent easement) or vertical alignment during construction shall be made during construction (with the Engineer's approval) to facilitate ease of installation and operation

(due to potential conflicts; i.e., utility conflict) at no additional cost to the Owner except for additional piping, if any. The trench from the top of the pipe down to the bottom of the bedding shall be of a consistent width as indicated on the plans. Should the excavated width of the trench be larger than the design width, the Engineer may direct that a higher type or class of bedding be used; or other adjustments be made to increase the load carrying capacity of the pipe.

- iii) The Contractor shall not excavate more trench in advance of pipe laying than is necessary to perform the work efficiently. No more than 100 feet of open trench shall be allowed unless approved by the Engineer.
- iv) Excavated material shall be placed in a manner that will not obstruct sidewalks, driveways, or other structures. Excavated material shall not be placed so as to surcharge the walls and jeopardize trench stability.

d) Disposal:

- i) The Contractor shall satisfactorily dispose of all excess earth from excavations either in approved (by the Engineer) areas within the construction limits or away from the project in disposal sites obtained by the Contractor.
- ii) The Contractor will be permitted to mound excess earth over the trench to a maximum depth of 12 inches above the original ground surface or finished grade where the trench is located in unimproved property. Wasting of excess excavated material will not be permitted within any road ROW. All material within the construction limits shall be placed so that natural drainage is maintained and the surface shall be graded to a smooth and uniform appearance. The disposal of waste and excess excavating materials, including hauling, handling, grading, and surfacing shall be subsidiary obligation of the contractor and no separate payment will be made. Therefore, the cost of such work shall be included in the Contract Unit Price for installation of water pipe.

e) Dewatering

- i) The site shall be kept free of surface water at all times. The Contractor shall install drainage ditches and dikes and shall perform all pumping and other work necessary to divert or remove rainfall and other accumulations of surface water from the excavations. The diversion and removal of surface water performed in a manner that will prevent the accumulation of water behind temporary structures or at any other locations within the construction area where it may be detrimental. The Contractor shall provide, install, and operate sufficient trenches, sumps, pumps, hoses, piping, well points, deep

wells, etc., necessary to depress and maintain the ground water level at least one foot below the base of the excavation during all stages of construction operations. The ground water table shall be lowered in advance of excavation and maintained a minimum of one foot below the lowest excavation subgrade made until the structure has sufficient strength and weight to withstand horizontal and vertical soil and water pressures.

- ii) Where groundwater is encountered, the Contractor shall make the effort necessary to secure a dry trench bottom before laying pipe. In sandy and in other suitable type soils, dewatering shall be done by well pointing. If, in the opinion of the Engineer, the Contractor has failed to obtain an absolutely dry trench bottom by insufficient use of all known methods of trench dewatering, the Engineer may order the Contractor to excavate below grade and place not less than 6 inches of graded crushed stone fill material over the trench bottom to form trench drains to suitably located sumps and to remove the water by bailing or pumping. The graded crushed stone fill material shall be placed at the Contractor's own expense and shall be of such depth that there shall be not water in bell holes at the time of coupling pipe. All costs of equipment, labor, and materials required for dewatering shall be included in the bid price.

f) Bedding

- i) The Contractor shall satisfactorily shape the trench area (to specified line, grade and cross section) to receive bedding material. The bottom of the trench shall be undisturbed soil. Should the Contractor over excavate the trench without direction from the Engineer, the trench shall be brought up to grade with select backfill and compacted to at least 90% of maximum laboratory density as measured by AASHTO T 99. Such additional work and materials for over excavation without direction of the Engineer shall be at the expense of the Contractor.
- ii) Holes for the bells shall be provided at each joint in the subgrade or in the granular fill bedding material as required. The holes shall be no larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the material. The Contractor shall install the proper bedding for the respective type of pipe and depth of installation as shown in the details and schedules on the plans. When depths vary in a particular manhole run, the Contractor shall change bedding systems in accordance with the depth installation requirements.
- iii) Stabilization Materials: When the subgrade is found to be unstable or to include ashes, refuse, organic material, or other unsuitable material, the Engineer may direct that the subgrade be over excavated to remove such material. The depths of over excavation shall be as directed by the Engineer. Stabilization material shall be placed into the over excavated area of the

trench and shall be paid for in accordance with these specifications. Stabilization shall be compacted to at least 90% of maximum laboratory density in six inch lifts.

iv) Bedding Materials

(1) As detailed in the plans, bedding material shall be placed to the specified depth below the pipe and tamped to a minimum of 90% of maximum laboratory density as determined in accordance with AASHTO T 99. Following placement of pipe, additional bedding material shall be placed and consolidated under the haunches of the pipe. Special tools shall be required to work the material into place and leave no voids beneath the pipe. The bedding material shall be tamped along the spring line (or along the top of the bedding material as indicated) of the pipe to sufficiently compact the material insofar as practical.

(2) The Engineer may direct additional moisture be added to the bedding material to aid in the compaction effort. Mechanical tampers may be employed to aid the process. depending on the particular bedding required, additional bedding shall be added and tamped to a minimum of 90% of maximum laboratory density, with AASHTO T-99.

v) Select Backfill: Select backfill shall be placed in 6 inch lifts and tamped to a minimum laboratory density with AASHTO T-99. Overall depth of the select backfill shall be as directed by the Engineer.

vi) Normal Condition Bedding: Under normal conditions the trench bottom shall be undisturbed earth shaped to the specified line, grad, and cross section with proper bell holes at each joint to insure that pipe barrel lies flat on trench bottom. The bedding material will be selected native materials excavated from the trench and placed in two lifts. The first lift being placed up to the spring line of the pipe and extending out to the trench walls and hand tamped to a minimum of 90% of maximum laboratory density. Special care shall be used in placing and tamping bedding to insure no voids under the haunches of the pipe. The second lift shall extend to approximately 6" above pipe (Material permitting) and hand tamped to 90% density.

g) Backfilling: Upon completion of placement of select material the excavated materials shall be immediately placed back into the trench. Specific requirements are:

i) Backfill requirements for road crossings, parking lots, driveways, and sidewalks shall be in accordance with Technical Specifications - RESTORATION of ROADS, DRIVEWAYS, FENCES, LAWNS and OTHER GRASSED AREAS.

- ii) Backfill requirements for unimproved areas (pastures, wooded areas) shall consist of placement and shaping of the soil in such a manner as to allow maximum natural consolidation. No compaction of the general backfill in the unimproved areas will be required, except that caused by conventional shaping equipment.
- iii) No debris shall be used as backfill which has a volume in excess of one-half of one cubic foot or weight excess of 75 pounds.
- h) Sheeting Removal: Wooden sheeting or other thick sheeting or shoring members which have been driven or otherwise placed along the trench walls to an elevation below the spring line of the pipe shall be cut off at the spring line or higher and left in place.
- i) Grading and Grassing: Final grading and grassing shall be in accordance with Technical Specifications, "RESTORATION of ROADS, DRIVEWAYS, FENCES, LAWNS, and OTHER GRASSED AREAS."
- j) Pipe Handling and Storage: Pipe shall be handled, staked, and stored in accordance with manufacturer's printed literature. The Contractor shall provide security as required to prevent damage by vandals. PVC pipe shall be shaded from sunlight for extended lengths of time. Pipe damaged during storage and handling shall be rejected.
- k) Pipe Laying
 - i) Each pipe shall be laid true to line and grade and in such manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow line. As the work progresses, the interior of the water shall be cleared of all dirt and superfluous materials of every description. Where cleaning after laying is difficult because of small pipe size, a suitable swab or drag shall be kept in the pipe and pulled forward past each joint immediately after the jointing has been completed. Trenches shall be kept free of water and pipe shall not be laid when the condition of the trench or the weather is unsuitable for such work. At times when work is not in progress, open ends of pipe and fittings shall be securely and satisfactorily closed so that no trench water earth or other substance will enter the pipe or fittings.
 - ii) The water main shall maintain a minimum of 30 inches of cover at all times.
 - iii) Pipe laying shall be performed in such a manner that no foreign material enters the pipe. The Engineer may require that before lowering pipe, heavy canvas bags be placed over each end, and left in place until joints are ready

to be made. If water is in the trench, the seals shall remain in place until the trench is pumped completely dry. If conditions are unsuitable, no pipe shall be laid until satisfactory laying conditions are obtained in accordance with the above specified requirements.

- l) Pipe Jointing: Piping shall be jointed in accordance with the manufacturer's printed recommendations. Gaskets shall be firmly set within the bells and grooves as required. The manufacturer's recommended lubricant or an approved equal shall be applied for slip type joints.
 - i) Ductile Iron Pipe Joint Construction: The installation and jointing of ductile iron pipe shall generally conform to the applicable provisions of AWWA Standard Specifications C-600 for pipe laying.
 - ii) Where mechanical joint pipe is used, the surfaces which come in contact with the gasket shall be thoroughly brushed with a wire brush just prior to assembly. The gasket should be brushed with soapy water prior to installation to remove loose dirt and to lubricate gasket as it is forced into its retaining space.
 - iii) When tightening bolts, it is essential that the gland be brought up toward the pipe flange evenly. The bolts should be partially tightened; the bottom bolt first, then the top; next the bolts on either side; and last, the remaining bolts. Overstressing of bolts to compensate for poor installation will not be permitted. Bolt torque shall be in accordance with manufacturer's specifications.
 - iv) All joints of whatever type shall be completely water tight after being subjected to the required tests.
- m) Borings: Borings shall be accomplished in accordance with Mississippi State Highway Department Standards. The contractor shall provide all necessary sheeting, bracing, cribbing, supports and appurtenances to insure the proper line and grade throughout the entire length of the crossing.
 - i) Casing Pipe: Casing Pipe shall be installed as indicated on the Contract Drawings. Joints shall be completely welded to provide structural integrity and shall be watertight.
 - ii) Carrier Pipe: Carrier pipe may be any of the allowed options of piping. However, the piping and joints shall be capable of withstanding the stress exerted by pushing the pipe within the casing.
 - iii) Carrier Pipe Supports: Supports for the carrier pipe shall be as recommended by the manufacturer for such installation. Supports shall be spaced to

adequately support the piping under all conditions.

- iv) Casing Seal: The annulus between the casing and carrier pipe shall be sealed at each end by installing WMSON Type U end seals, as manufactured by T.D. Williamson, Inc. Tulsa, Oklahoma, or equal, in accordance with the instructions of the manufacturer of the seals.

- 6) **SEPARATION of WATER and SEWER MAINS:** The water and sewer specifications should state that the water line be constructed no less than 10 feet horizontally and 18" vertically with water line over sewer line. If those conditions cannot be met then they will be decided on a case by case basis.

7) **TESTING**

a) Ductile Iron Pipe

- i) Field Inspection: The Engineer shall perform visual inspection of the material prior to placement by the Contractor. The Engineer may make non-destructive tests to determine the soundness of the pipe. The Contractor shall assist the Engineer in handling and moving the pipe as required.
- ii) Material Test: Material test shall be conducted during the manufacturing process and the results shall be included as part of the submittals. No other material test shall be required.

- b) Steel Casing Pipe Material test shall be included as part of the submittal. No other material test shall be required.

c) Compaction Tests

- i) Compaction tests shall be performed in accordance with AASHTO T 191 or ASTM D 2922. Maximum compaction shall be determined in accordance with AASHTO T 99.
- ii) Compaction tests for water pipe related work shall not be less than as follows:

NUMBER of COMPACTION TESTS AASHTO T-99, AASHTO T-191, or ASTM D 2922		
Stabilization Material	1	One per 100 C.Y.
Bedding material	2	One per 600 L.F.
Tamped Backfill	2	One per 600 L.F.

d) Hydrostatic Testing

- i) After the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least 1.5 times the working pressure at the point of testing and not less than 1.25 times the working pressure along the test section, for a minimum of 2 hours.
- ii) And all tests shall be in accordance with AWWA Standard C600, Section 4.
- iii) Allowable leakage shall be no more than that determined by the following formula:

$$L = \frac{SD \sqrt{P}}{133,200}$$

- iv) In which L is the allowable leakage in gallons per hour; S is the length of pipe tested in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test in pounds per square inch.
- v) These tests are to be made at the Contractor's expense and he is to provide all necessary fittings, equipment, appliances and any other necessary items to conduct the tests in a manner satisfactory to the ENGINEER. All costs incidental to conducting these tests are to be included in the prices bid for the various items of construction as no separate or extra compensation is to be allowed therefore. Record of testing is to be furnished to the OWNER.

8) CLEANING and STERILIZING

- a) Before each section of work is placed in service, it shall be thoroughly flushed to remove any dirt or other foreign material from inside the lines; and the inside of the lines shall be sterilized by pumping into and through them a solution of chlorine of 50mg/l for 24 hours in such manner as to meet the requirements of the State Board of Health.
- b) At least two (2) samples of chlorine free water, taken from each section shall be submitted to the State Board of Health for examination to determine if the

system is free from organisms of the Coli-Aerogenes group. If such samples are not negative from organisms of the Coli-Aerogenes group, the system shall be disinfected and re-disinfected in a manner meeting the requirements of the State Board of Health, until the system is freed of contamination.

- c) All water mains will be flushed, chlorinated and re-chlorinated until two (2) consecutive negative water samples are obtained by the Local Health Department. The samples shall be collected by the Certified Operator of the system or the Professional Engineer of the project.
- d) The CONTRACTOR shall be responsible for the conduct of all of the above defined activities, and any and all costs incident thereto shall be included in the prices bid for the various items of construction as no separate or extra compensation is to be allowed therefore.

FIRE HYDRANT

1.0 General

Fire hydrants shall comply in all respects with AWWA Standard C-502, latest revision, and shall be M & H or approved equal. Fire hydrants shall be of the compression type with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be 4-1/2", 5-1/4", or 6-1/4" in diameter. Fire hydrant shall be of a dry barrel, dry top design. The main valve on the hydrant shall remain closed should the hydrant nozzle section be broken off by a traffic accident. The nozzle section shall consist of two (2) hose nozzles and one (1) pumper nozzle or other, as specified.

2.0 Rating

Fire hydrants shall be rated at 150 psi water working pressure, tested at 300 pounds hydrostatic for structural soundness in the following manner: 300 pounds hydrostatic test supplied from the inlet side, first with the main valve closed for the testing of the valve seat; second, with the main valve open for testing of the drain valves and the hydrant barrel. Testing is to be completed in accordance with AWWA C-502.

3.0 End Configurations

Hydrants shall be connected to the main by a 4", 6", or 8" mechanical joint, flange shoe, A.C., or hub shoe. Mechanical joint shoes, A.C., and hub shoes shall be fitted with strapping lugs.

4.0 Design

- 4.1 The main valve seat of the hydrant shall be made of rubber and be supported by a one-piece bronze top plate and drain valve mechanism and bottom plate. The bottom stem threads of the main valve rod shall be fitted with a cast iron cap nut (epoxy coated, optional) suitable for sealing the threads from the water. Drain valves shall be faced with rubber.
- 4.2 Changes in size or shape of the waterway shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than one hundred twenty percent (120%) of that of the net opening of the main valve.
- 4.3 Hose and steamer nozzles shall be threaded and screwed into the nozzle section and then pinned to prevent turning.

- 4.4** The hydrant shall be so designed that when it is in place, no excavation will be required to remove the main valve and moveable parts of the drain valve. Further, the hydrants shall be of the type that can be extended without excavating. Hydrants shall be so designed that, in the event of accident or breaking of the hydrant above or near grade level, the main valve will remain closed. The main valve rod shall be made in two parts and fitted with breakable feature at the ground line flange.
- 4.5** The ground line connection between nozzle section and the barrel shall incorporate the use of eight (8) breakable bolts. This connection shall be so designed that the nozzle section can be rotated in increments of forty-five (45) degrees. The ground line connection between the barrel and nozzle section shall be gasketed to provide a seal.
- 4.6** The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.
- 4.7** The operating thread shall be grease lubricated at the factory. Access shall be provided to field lubricate the operating mechanism.
- 4.8** The operating thread shall be sealed from water at all items when the valve is either in the opened or closed position. The operating rod shall be bronze sheathed where it passes through the double "O" ring seal plate.
- 4.9** The bonnet shall be weather proof.
- 4.10** The operating nut shall be of bronze and a self-lubricating, anti-friction thrust bearing shall be provided to reduce operating torque.
- 4.11** Hydrants shall be of the dry type and hydrant shoe shall have two positive acting non-corrodible drain valves that shall drain the hydrant completely by opening when the main valve is closed and close tightly in accordance with AWWA C-500 requirements when the valve is open. The main valve assembly shall be seated in the hydrant (with a bronze-to-bronze interface as an option) to facilitate removal of the main valve should maintenance be required. The nozzle section shall consist of two 2" hose nozzles to the specified thread designation (NST or other, as specified) and one pumper nozzle 4-1/2" in diameter to the specified thread designation (NST or other, as specified) or other combination of nozzle outlets including independent hose gate valves as specified.
- 4.12** Two "O" ring seals shall be utilized where the main hydrant rod passes through the seal plate.

- 4.13 Hydrant standpipe shall be ductile or cast iron and single piece for all bury depths.
- 4.14 All like parts of hydrants of the same size and model produced by the same manufacturer shall be interchangeable.
- 4.15 Hydrant shall open by turning to the left.
- 4.16 Threads or hose and streamer nozzles shall be national standard unless otherwise specified.
- 4.17 Auxiliary shut-off (isolation) gate valves, when required, shall be of the same manufacture as the hydrant.
- 4.18 The inside of all hydrants shall be coated in accordance with AWWA standards and federal specification TT-C-494A or equal except for bronze and machined surfaces. Exterior of hydrant shall be painted fire hydrant yellow (or as specified). (The wetted surface of the hydrant shoe shall be epoxy coated to prevent corrosion of the waterway, optional.)

5.0 Markings

Hydrant shall be marked with the name of the manufacturer, size of valve opening, and the year of manufacture, all in accordance with AWWA C-502.

MANHOLES

1.0 GENERAL:

This item shall consist of furnishing all materials, labor, supervision, tools, equipment and incidentals for the construction of standard manholes, in accordance with the Contract Drawings and Specifications. Included in the work are structural excavation, backfill, and disposal of excess material.

2.0 APPLICABLE DOCUMENTS:

The following publications form a part of this specification and where referred to by basic designation only, are applicable to the extent indicated. The latest editions of the publications referenced shall apply to the work.

American Society for Testing and Materials (ASTM)

A 48/A48M	Standard Specification for Gray Iron Casting
C 39/C39M	Standard Specification of Test for Compressive Strength of Cylindrical Concrete Specimens
C 443	Standard Specification for Joints for Circular Concrete Pipe and Manholes Using Rubber Gaskets
C 478	Standard Specification for Precast Reinforced Concrete Manhole Sections
C 497	Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile
C 2922	Density of Soil and Soil Aggregate in Place by the Nuclear Method (Shallow Depths)

American Association of State Highway and Transportation Officials (AASHTO):

M-198 - Standard Specifications for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

T-99 - Standard Method of Test for the Moisture-Density Relations of Soils Using a (2.5kg) Rammer and (305 mm) Drop.

T-191 - Standard Method of Test for Density of Soil In-Place by the Sand-Cone Method.

3.0 SUBMITTALS

The following tests or data shall be submitted to the Engineer from the Contractor for approval prior to incorporation into the work:

3.1 Certificates: The Contractor shall furnish certificates from supplier certifying the products conform to the required specifications included herein for the following items:

- 3.1.1. Flexible Plastic Gaskets
- 3.1.2. Precast Manhole Bases
- 3.1.3. Precast Manhole Riser Sections
- 3.1.4. Manhole Steps
- 3.1.5. Manhole Frames and Covers (ASTM A 48)
- 3.1.6. Epoxy Grout

3.2 Catalogue Cuts or Brochures: The Contractor shall also submit catalogue cuts or product brochures providing descriptive data, recommended application and use, and installation procedure for the following items:

- 3.2.1. Manhole Frames and Covers
- 3.2.2. Epoxy Grouts
- 3.2.3. Manhole Steps

4.0 MATERIALS

4.1 Manhole Riser Sections: Manhole riser sections shall be precast reinforced sections conforming to ASTM C 478 and as shown on the Contract Drawings.

4.2 Joints: Joints for precast riser sections shall be concrete pipe type flexible plastic gaskets. Joint material shall be performed conforming the requirements of AASHTO M-198. Installation shall be in accordance with manufacturer's recommendations.

4.3 Concrete Manhole Bases: Concrete manhole bases shall be precast or cast-in-place as follows:

4.3.1 Cast-In-Place Manhole Bases and Box Type Bases (if used): Concrete and reinforcing steel shall conform to the requirements of Technical Specifications - CONCRETE.

4.3.2 Precast Concrete Bases: Precast concrete bases shall conform to the requirements of ASTM 478 with reinforcing steel (size and spacing as indicated on the plans).

4.4 Manhole Steps: Manhole steps shall be plastic coated corrosion resistant and shall be installed as shown on the Contract Drawings.

4.5 Cement Grout: Cement grout shall be high strength, non-metallic conforming to Corps of Engineers CRD-C-588. The grout shall be V-3 by W. R. Meadows, Inc., Masterflow 713 by Master Builders or equal.

4.6 Manhole Frame and Covers: Manhole frame and covers shall conform to ASTM A 48 as well as to the following requirements. All frame and covers shall be new when installed for the project.

4.6.1 Standard Manhole Cover and Frame - shall be as manufactured by Dews Foundry, Jackson Standard, Model DF-25 (7) or Vulcan Foundry, Model V-1115, 420 Pounds, marked "SEWER", domestic origin, or equal.

4.6.2 Water Tight Manhole Cover and Frame - shall be as manufactured by Vulcan Foundry, Model V2357, or Dews Foundry, Model DF-25(7) W.T., 410 pounds with neoprene gasket, four 5/8-inch stainless steel bolts recessed into cover. Cover labeled "SEWER", domestic origin, or approved equal.

4.7 Epoxy Grout: Epoxy Grout shall be high strength non-metallic, non-shrinking. The grout shall be as by EMBECO, Inc., SEAL-COAT or approved equal.

4.8 Drop Manholes: Concrete for drop manholes shall conform to the requirements of Technical Specifications - CONCRETE. Pipe and fittings shall be the same material and size as the incoming gravity sewer.

4.9 Flexible Connection: At all sewer connections to manholes, provide gasket flexible watertight connection that allows for differential settlement of the pipe and manhole wall.

4.10 All manholes: All manholes shall be lined inside with a sixteen (16) mil dry film thickness of an acceptable coal tar epoxy system.

5.0 CONSTRUCTION

5.1 Earthwork

5.1.1 General: Excavation shall be to the extent required to allow proper construction of the manhole. Shoring and sheeting shall be utilized where required by Federal, State and local codes and regulations for safe working conditions. In addition, shoring and sheeting shall be required to protect the integrity of adjacent structures or prevent adverse effects on surrounding areas. Dewatering shall be employed to the extent required to allow dry working conditions.

5.1.2 General Excavation: The Contractor shall "lay back" or employ shoring and sheeting as required to assure stability of the excavation. Material shall be stockpiled so as not to surcharge adjoining pipe trenches. Topsoil shall be separated so as to allow

the maximum reuse in grassing operations.

5.1.3 Structural Excavation: The area immediately beneath the manhole bases shall be graded and compacted. Compaction shall be to 96% of maximum laboratory density as determined by AASHTO T 99. Should unsuitable material be encountered, the Engineer may direct that the area be over excavated and filled with stabilization material. Specification for stabilization material and payment for such shall be in accordance with Technical Specifications.

5.1.4 Backfilling: Backfill material shall consist of select backfill in accordance with Technical Specifications. Backfilling shall be uniformly placed around the structure in 10-inch layers and be compacted to 90% of maximum density to full depth in unimproved areas. Backfill in paved areas and within five feet to any edge of pavement shall be compacted to 95% of maximum laboratory density in 8-inch layers to the subgrade line. Refer to Technical Specifications.

5.1.5 Salvage: Manhole frames and covers removed during excavation shall remain the property of the Owner and shall be delivered to a location designated by the Owner. All other items removed shall be disposed of by the CONTRACTOR at his expense.

5.2 Riser Installation: Precast concrete riser sections shall be installed plumb and in accordance with the details shown on the Contract Drawings. Joints shall be installed in accordance with manufacturer's recommendations.

The manhole invert channels shall be formed in the bases, smooth and semi-circular in shape conforming to the inside of the adjacent sewer section. Changes in the direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. Changes in size and grade of the channels shall be formed directly in the concrete of the manhole base. The joint between the base and riser section shall be sealed with epoxy grout. Clean pea gravel shall be used as the epoxy grout filler.

Standard manhole cut-outs and lifting holes shall be sealed with epoxy grout.

5.3 Cast-In-Place Concrete: Bases, flat tops, and drop manhole risers shall be constructed in accordance with Technical specifications – CONCRETE.

5.4 Manhole Steps: Manhole steps shall be installed during the manufacturing of the riser or cone sections. Risers and cones shall be joined so the steps are vertically aligned.

5.5 Manhole Frame and Covers: Manhole frame and covers shall be set and grouted in place with cement grout. For manholes located in roads or streets, the manhole cover shall be flush with pavement or surface course.

6.0 TESTING

6.1 General: The Contractor shall conduct (and bear the cost of) all testing (Laboratory Approved by the Owner) as directed by the Engineer and furnish results of such tests prior to incorporating the material into the work. All testing is subsidiary to Manhole Payment Items.

6.1.1 Cast-In-Place Concrete Items: The concrete quality testing for manhole bases, drop manholes, and valve boxes shall be tested in accordance with Technical specifications - CONCRETE.

6.1.2 Manhole Risers and Precast Concrete Bases: Manhole risers and precast concrete bases shall be tested for concrete compressive strength. If the place of manufacture is local and reasonably available to the Engineer, Paragraph (a) shall be followed for testing requirements. Should the place of manufacture not be available, Paragraph (b) shall apply.

The contractor shall prepare (in the presence of the Engineer) standard rodded concrete cylinder or cylinders compacted and cured in a similar manner to the manhole sections. Concrete for such cylinders shall be typical fresh concrete mix drawn from the actual casting operation of a riser or base. Cylinders shall be tested in accordance with ASTM C 39. The average compressive strength shall be equal to or greater than the specified design strength (4000 psi). Not more than 10% of the cylinders shall fall below the design strength (4000 psi). In no case shall any cylinder tested fall below 3200 psi. Number of such cylinder tests shall be as follows:

6.1.2.1 One set of cylinders for each day's run castings or

6.1.2.2 One set of cylinders for each 200 linear feet of riser sections manufactured.

6.1.2.3 One set of cylinders per 20 bases or flat tops manufactured.

The Engineer may require additional tests should compressive test results fail.

6.1.3 Earthwork Test: Maximum laboratory density shall be measured in accordance with AASHTO T-99. Field densities shall be determined in accordance with AASHTO T-191 or ASTM D 2992. Standard proctors and field densities shall be performed in accordance with the following schedule.

Standard proctor tests shall be required for earthwork associated with manhole construction. At least two (2) field density tests shall be conducted for earth work associated with each manhole construction.

6.1.4 Inspection for Watertightness: All manholes shall be inspected for watertightness prior to placing into service.

CONCRETE

1. GENERAL

A. This item shall consist of furnishing all materials, labor, supervision, tools, equipment and incidentals and performing all forms of work; furnishing and placing reinforcement, inserts and anchors; mixing, placing, curbing, and furnishing of portland cement concrete.

B. The work includes, but is not necessarily limited to manholes, pumping stations, lift stations and minor concrete work.

2. APPLICABLE DOCUMENTS

The following publications form a part of this Specification and where referred to by basic designation only, are applicable to the extent indicated. The latest editions of the publication referenced shall apply to the work.

A. American Society for Testing and Materials (ASTM):

A 615 Billet Steel for Concrete Reinforcement

C 31 Making and Curing Concrete Compressive and
Flexural Strength Test Specimens in the Field

C 33 Concrete Aggregates

C-39 Compressive Strength of Molded Concrete Cylinders

C 143 Slump of Portland Cement Concrete

C 150 Portland Cement

B. Mississippi Department of Transportation (MDOT):

Standard Specifications for Road and Bridge Construction Current Edition.

3. SUBMITTALS:

The following data shall be submitted to the Engineer for review prior to incorporation into the work:

A. Letter from the manufacturer certifying the concrete mix conforms to the requirements for Class B concrete as defined in Section 804 of the MDOT Standard Specifications for Road and Bridge Construction.

B. Letter of certificate from the manufacturer certifying that the reinforcing steel conforms to the herein specified requirements.

4. MATERIALS:

A. General: The concrete shall be ready-mix concrete manufactured by a plant for delivery to the site of the work in a plastic state. The Contractor may batch the concrete at the work site by use of portable mixers providing the following requirements are met:

1. Facilities shall be provided to properly weight, proportion and control the components of the concrete mix.

2. The mixer(s) shall be of such capacity so as to allow the complete placement of the plastic concrete mix prior to the initial set of any portion of the particular concrete pour.

B. Concrete Mix: The concrete materials and mix design shall conform to the requirements for Class B Concrete Section 804, MDOT Standard Specifications for Road and Bridge Construction. The compressive strength of the concrete shall be a minimum of 3000 psi at 28 days, or earlier. Type I Portland Cement shall be used in the mix, except where otherwise specified or permitted. Prior to producing any concrete for cast-in-place construction on the project, the Contractor shall submit to the Engineer the proposed mix design and shall obtain Engineer's approval of the mix design.

C. Reinforcing Steel - shall be new stock, deformed bars conforming to ASTM A 615, Grade 40 or Grade 60.

D. Curing Material - shall consist of wetted burlap, wetted cotton mats, plastic sheeting, or an approved liquid membrane material which will satisfactorily keep the new concrete in a moist condition for at least seven (7) days.

5. CONSTRUCTION:

A. Weather Limitations: Concrete shall be placed when the atmospheric temperature is a minimum of thirty-five (35) degrees F. and rising. Newly placed concrete shall be protected from cold temperatures for at least four (4) days at a temperature of not less than forty (40) degrees F.

B. Forms: Forms shall be securely anchored in place and properly aligned. Wood forms shall be oiled prior to placement of fresh concrete mix.

C. Reinforcement: Reinforcing bars shall be securely mounted by the use of chairs or other approved methods so as to not become displaced during placement of concrete mix. The positioning of reinforcing by working the bars into the newly placed concrete mix shall not be allowed.

D. Placement: The plastic concrete mix shall be worked (and vibrated if required) into the formwork. The mix shall be consolidated so as to remove all voids and finished to form a true and level surface.

E. Curing: The hardened concrete shall be kept moist by the use of curing materials for a minimum of seven (7) days.

F. Slump Requirements: The following slump requirement shall apply:
Class B Concrete 2-4 Inches

G. Chamfered Corners: All exposed corners shall be chamfered one (1) inch or as indicated.

H. Finish:

1. All surfaces shall be "floated" to provide a uniform and level surface. Defects (honeycombs, ties, etc.) shall be repaired. No rubbing shall be required.

2. Sidewalks, driveways and other surfaces subject to pedestrian traffic shall be floated as noted in paragraph 1 above and shall receive a "broom" finish.

6. TESTING

The following test shall be required:

A. Slump: The Engineer shall test the concrete mix for conformance to the slump requirements as required. Test shall be in accordance with ASTM C 143.

B. Compressive Strength: The Engineer shall sample the concrete mix and prepare test cylinders for conformance to the compressive strength requirements. The Contractor shall transport the cylinders to the testing laboratory (employed by the Contractor) and have the cylinders tested in accordance with ASTM C 31 and C 39. The results of such test shall be forwarded to the Engineer. Test shall be performed at the following schedule.

One test per 15 cubic yards or major fraction thereof. A minimum of one test for each day of mixing shall be performed.

RESTORATION OF ROADS, DRIVEWAYS, FENCES

LAWNS AND OTHER GRASSED AREAS

1.0 GENERAL

The work under this item of work shall consist of furnishing all necessary materials, labor, supervision, tools, equipment and incidentals for the restoration of roads, driveways, fences, lawns and other grassed areas so as to provide satisfactory repair to all damage caused by general construction work. It is the intent of these Specifications to restore all such features to the general conditions that existed prior to construction activity insofar as practical. It is not the intention of this Specification that trees, which must be cut and removed, be restored. The Contractor is expected to be familiar with the overall area and be satisfied as to the materials required and level of effort needed to accomplish such restoration in accordance with this Specification.

2.0 APPLICABLE PUBLICATIONS

The following publications form a part of this specification and where referred to by basic designation only, are applicable to the extent indicated. The latest editions of the publications referenced shall apply to the work:

American Association of State Highway and Transportation Officials (AASHTO).

T 99 The Moisture Density Relations of Soils Using a 5.5lb. (2.5 kg) Rammer and a 12-inch (305 mm) Drop

T 167 Compressive Strength of Bituminous Mixture

T 191 Density of Soil In-Place by the Sand-Cone Method

T 230 Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures

American Society for Testing and Materials (ASTM)

D 2922 Density of Soil and Soil Aggregate in Place by the Nuclear Method (shallow depths)

Mississippi State Highway Department (MSHD)

Standard Specifications for Road and Bridge Construction, 1990 Edition
Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)

3.0 SUBMITTALS

3.1 Mix Designs: Design mix will be provided by Contractor and approved by Engineer prior to production of asphalt.

4.0 MATERIALS

4.1 Subbase and Base Courses: Subbase and base courses under paved areas shall be as specified in MSHD Specification Section 300.

4.2 Prime Coat: Prime coat shall consist of Grade MC-30 or Grade MS-70 in accordance with the applicable requirements of MDOT Specification Section 408.

4.3 Bituminous Pavement: Bituminous Pavement for roadway and parking areas, wearing and binder courses, shall consist of a mix in accordance with MDOT Specifications Section 403.

Materials shall conform to the following subsection of MDOT Specifications Sections 702 and 703.

Bituminous Materials (AC-20) 702.01
Aggregate

A. BC-1 Binder Course

B. SC-1 for Surface Course
Filler 703.14

C. Topsoil: Topsoil shall be in accordance with Technical Specifications - SEEDING AND SODDING.

E. Seeding and Sodding: Seeding and sodding operations shall be in accordance with Technical Specifications - SEEDING AND SODDING.

SEEDING AND SODDING.

5.0 CONSTRUCTION

5.1 Maintenance of Traffic: Prior to limiting or restricting traffic on any street or road, the Contractor shall obtain permission from the City of Petal. Through or local traffic shall at all times be accommodated by the use of temporary approaches, crossings or detours (if allowed by the City of Petal). Satisfactory (to the Property Owner) ingress and egress to any public or private property shall be properly maintained. Proper barricades, signs and detour signs shall be provided by the Contractor to adequately

warn motorists of obstructions ahead. Lighted (flashing) barricades shall be used at night.

Flagmen shall be provided to direct traffic around equipment and for one-way movement of traffic around equipment and for one-way movement of vehicles. The Contractor may have to stop construction and restore full traffic during certain rush hours.

The Contractor shall at all times (unless otherwise permitted in writing by the City of Petal) maintain open one lane to traffic during construction operations and restore roadways to two-way traffic during non-construction hours.

5.2 Repair of Asphalt/Concrete Streets/Driveways/Parking Lots:

A. Removal and Earthwork: The existing asphalt pavement shall be uniformly saw cut on straight lines and the material shall be removed. Other methods of cutting the existing asphalt surface which will result in a uniform straightedge similar to a sawed cut may be acceptable. Upon completion of the pipe laying, select backfill shall be placed in the excavation in maximum 8-inch lifts and compacted to at least 90% of maximum laboratory density to within one foot of the top subgrade and to 95% of maximum laboratory density in the upper one foot of the subgrade.

Maximum density of typical select backfill material shall be determined in accordance with AASHTO T 191 or ASTM D 2922. Portable mechanical tampers or vibratory compactors shall be used in the trenches. Rollers may be used at street level. Existing base and asphalt surfaces which become undermined during construction shall be removed until firm undisturbed subgrade is reached.

A. Asphaltic Base: Asphaltic base shall be constructed in accordance with MDOT Specification Section 300.

B. Prime Coat: Prime coat shall be applied to exposed existing base material prior to overlay with asphaltic base course in accordance with MDOT Specification Section 408.

C. Tack Coat: Tack coat shall be applied to existing or new asphaltic wearing course and asphaltic base, or concrete which is to require asphalt wearing course.

D. Asphalt Wearing Course: Placement and compaction of the bituminous pavement shall be in accordance with MDOT Specification Section 403.03.

E. Utilities: All utility covers excavated during removal of streets, driveways, parking lots shall be restored to finished grade.

5.3 Driveways and Sidewalks: Driveways and sidewalks shall be repaired in similar manner to the original construction. Asphalt drives shall be saw cut where required and repaired in accordance with Paragraph (b) of this Specification. Concrete drives shall be saw cut or removed to the next joint. The minimum thickness for concrete driveway repair is 6 inches and for sidewalks is 4 inches.

Concrete surfaces shall be properly tooled and receive a broom finish. Installation (if required) of new driveway drainage culvert shall be made only at the direction of the Engineer. The Contractor shall take all reasonable precautions to allow for reuse of existing drainage culverts.

5.4 Repair to Gravel Roads: Gravel roads shall be backfilled and compacted in accordance with Paragraph (B) of this Specification. The final surface shall consist of 12-inch in-place compacted clay gravel. Compaction shall be to 100% of maximum laboratory density in accordance with AASHTO T-99.

5.5 Repair to Lawns:

A. **General:** The Contractor shall exercise extreme care to minimize damage to improved lawns. Trees and shrubs within the limits of work shall be removed only for essential construction requirements. Any shrubs, which are removed or damaged, shall be replaced by satisfactory (to the Property Owner) planting by the contractor. Any grass seed areas, roads, streets, driveways, culverts, fences, water lines, metal boxes or other items (excluding trees unavoidably cut) which are damaged by the Contractor, shall be satisfactorily restored by Contractor. Acceptance of improved lawn repairs shall be based on the firm establishment of live stand of grasses and live growth of any replanted and acceptable shrubs. The Contractor shall water and fertilize such areas until healthy growth of grass (and shrubs, if applicable) is attained.

B. **Grading:** The surface areas shall receive finish grading so the finish topsoil surface (after settlement) will meet the existing contour grade of the area prior to construction. The natural drainage during and after construction shall not be altered so as to cause adverse effects to adjoining properties.

C. **Topsoil:** The Contractor shall strip topsoil and sod and stockpile for later use. Upon completion of trenching over the area. Additional topsoil shall be furnished if required (at no additional cost) to provide a uniform thickness of 3 inches. Lime at a rate of 1 - 1/2 tons per acre and fertilizer (13-13-13) at a rate of 800 pounds per acre shall be applied as needed to further establish grass growth.

D. **Grassing:** Grass seed, sprigs, or sod similar to the existing lawn grasses shall be planted in accordance with the supplier's recommendations. Winter cover grasses such as rye grass shall be applied (in addition to planting the permanent grasses) if seeding, sprigging, or sodding is done at a time of year when the permanent grasses will not actively grow. The type (s) of permanent grasses shall be the same as the grass(es) in

the damaged lawns. If the lawn repairs are accomplished between September 1 and March 1, the Contractor shall continue the restoration work during the next period of March 15 and April 5 and mow the grass and continue the restoration until satisfactory growth of the permanent grass (es) is obtained. Such additional restoration work shall include the 1 - 1/2 tons of lime per acre, application of 13-13-13 fertilizer at a rate of 800 pounds per acre and replanting and watering permanent grass as necessary to obtain satisfactory (to Engineer) growth. No time will be charged against the Contract Time for any such additional restoration work.

E. Sodding:

Sodding shall be in accordance with Technical Specifications: - Seeding and Sodding.

5.6 Erosion Control: During all phases of construction, the Contractor shall adequately protect all work from adverse erosion. Soil shall not be allowed to flow off the limits of work area. The Contractor shall employ the use of ditch checks, matting, temporary grass cover, blankets, or other measures to control erosion. The Contractor shall be responsible to correct damage caused by erosion.

During the construction of this project, all work areas will be strictly monitored. All trench lines will be kept in excellent condition, all streets and drives will receive careful maintenance, keeping potholes and settled areas filled in. Dust control is essential and will also be strictly monitored.

5.7 General Grassing of Unimproved Areas

A. General: The Contractor shall seed and establish grass growth in all disturbed areas in unimproved areas (to include pastures and roadsides). Acceptance of the grass cover shall be based upon the firm establishment of a live stand of grass. The contractor shall water such grass if natural rainfall fails to adequately provide moisture. On slopes and other areas subject to erosion, grassing shall be accomplished as soon as practical (within 48 hours unless weather is prohibiting) after finish grading operations.

B. Grading: The surface area shall receive finish grading so the finish topsoil surface (after settlement) will meet the existing contour grade of the area prior to construction. The natural drainage during and after construction shall not be altered so as to cause adverse effects to adjoining properties.

C. Topsoil: The Contractor shall remove existing topsoil and stockpile for later use. Upon completion of backfilling (to establish contours as before construction), the topsoil shall be uniformly spread back over the area. The Engineer may require additional

topsoil be furnished by the Contractor, if in the opinion of the Engineer, adequate provisions and efforts were not made by the Contractor to stockpile and re-use existing topsoil material.

D Fertilizer and Agricultural Limestone: The Contractor shall uniformly apply 800 lbs. per acre of 13-13-13 fertilizer and also apply two (2) tons per acre of agricultural limestone to the area to be seeded. The fertilizer and limestone shall be tilled into the soil to a depth of four (4) inches.

Seeding: Seed shall be uniformly sown in accordance with Technical Specification - Seeding and Sodding

Sodding: Sod shall be place in accordance with Technical Specification - Seeding and Sodding

E. Mulch Cover: Erosion prone areas such as steep slopes and highway shoulders shall receive a layer of loose straw mulch or equivalent at the rate of one and one-half (1-1/2) tons per acre. The mulch cover shall be established by the application of emulsified asphalt or by "crimping" parts of the material into the soil.

5.8 Miscellaneous Items: Items such as fences, gates, headwalls, paved ditches, and other items shall be replaced or repaired as required for restoration. Should additional fencing material be required, new post and new wire of similar size, type and gauge shall be provided and installed.

5.9 General Care: Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees, which do not have to be removed in the opinion of the Engineer, and which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

6.0 TESTING

6.1 General: All sampling and testing shall be accomplished by the testing laboratory approved by the Owner and employed by the Contractor to perform such services. Results shall be immediately forwarded to the Engineer by the Contractor.

6.2 Earthwork: Earthwork directly involved with road and street repair shall be tested as follows:

A. Moisture Density Relationship (Standard Proctors): Two tests of sampled native material shall be required. Tests shall be in accordance with AASHTO T 99.

B. Field Density: A minimum of two and a maximum of four field density tests shall be required. Density tests shall be in accordance with AASHTO T 191 or ASTM D 2922

C. Topsoil: Two pH tests and two organic content tests (wet combustion method) will be required.

SEEDING AND SODDING

1.0 DESCRIPTION

This item consists of furnishing all labor, supervision, materials, tools, incidentals and equipment and performing all work for topsoiling, tilling, fertilizing, seeding, watering, and otherwise establishing, protecting and maintaining seeded and sodded areas as required by the Contract Drawings and these specifications, and including repair, refertilizing and reseeding as required until final inspection and acceptance of the project.

2.0 SUBMITTALS

Certificates for fertilizer, limestone, seed.

3.0 MATERIAL

3.1 Topsoil: Topsoil shall be the surface layer of soil that is stockpiled by the Contractor during stripping and/or excavation on the site. The topsoil shall be free of subsoil, clay, lumps, stones, brush or seed. Topsoil shall have a pH value of not less than 4.5 nor more than 8.0.

3.2 Lime: Lime shall be ground limestone containing not less than 80% of total carbonates and shall be ground to such fineness that 80% will pass through a No. 10 mesh sieve and 40% will pass through a No. 40 mesh sieve.

3.3 Fertilizer: Fertilizer shall be water soluble commercial carriers of available plant food elements or combinations thereof, as stated herein and shall conform to the applicable state fertilizer laws. They shall be uniform in composition, dry, and free flowing materials in condition for application by suitable equipment. The fertilizer shall be delivered in standard bags or other convenient standard containers, each fully labeled with manufacturer's guaranteed analysis. Any fertilizer shall contain not less than the percentages by weight of the ingredients set out as follows: (1) Nitrogen, 13% (2) Phosphorous P O, 13%, (3) Potash K C, 13%. Invoices for fertilizer will show the kind and have analysis furnished.

3.4 Seed: Seeds with a minimum pure live seed content of 90% shall be used. They shall be of the best grade and of known vitality, purity, and germination and shall be delivered in containers bearing seed tags as required by law showing percentages of germination content and purity of seed as well as percentages of weed seed content.

All seeds shall be free of wild onion, Canadian thistle, Johnson grass, crab grass or other seeds of noxious weeds. All seeds shall be furnished in standard containers, or as acceptable to the Engineer. Seed which has become wet, moldy or otherwise damaged in transit or storage will not be acceptable.

Purity, Germination and Planting Schedule

Spring and Summer Seeding (March 1 to September 1)

<u>Name</u>	<u>Percent Purity</u>	<u>Percent Germination</u>	<u>Mix (Dry Wt. Lbs.) Per Acre</u>
Hulled Bermuda	95	90	20
Pensacola Bahia	95	90	30
TOTAL			50

Fall and Winter Seeding (September 1 to March 1)

<u>Name</u>	<u>Percent Purity</u>	<u>Percent Germination</u>	<u>Mix (Dry Wt. Lbs.) Per Acre</u>
Unhulled Bermuda	95	90	20
Pensacola Bahia	95	90	30
Rye	95	85	15
Crimson Clover	95	85	8
TOTAL			73

Seeding in Existing Lawns: Grass seeds for existing lawns shall be the same as the existing grass.

3.5 Leguminous Inoculants: Inoculation media containing live nitrogen-fixing bacteria shall be supplied with all legume seed. The inoculants shall be standard, pure culture of nitrogen-fixing bacteria. Each kind of legume will require cultural bacteria that are adapted to that particular kind of seed. The bacteria shall be supplied in convenient containers seed. The bacteria shall be supplied inconvenient containers of a proper size to treat the amount of seed to be planted. The legume seeds shall be treated according to the directions, and before the expiration date for use of the media shown on the container.

3.6 Soil for Repairs: for fills or areas to be repaired, soil shall be topsoil of a least equal quality to that which exists in areas adjacent to the area to be repaired.

3.7 Water: Water shall be free from oil, acid, alkali, salt, and other substances harmful to growth of grass, and shall be from a source accepted prior to use.

3.8 Solid Sod: Bermuda or Carpet Grass and shall be native to the locality of the work and shall, when placed be live, fresh, growing grass with at least two and one-half (2-

1/2) inches of soil adhering firmly to the roots. The sod shall be reasonably free from obnoxious weeds or other grasses, and shall not contain any matter deleterious to its growth; or which might affect its subsistence or hardness when transplanted. The sod shall be in blocks at least 3"x 8", and free from ragged edges.

4.0 INSPECTION AND TESTS

4.1 Fertilizer and Limestones: Duplicate copies of material invoices shall be furnished to the Engineer. Invoices shall show quantities and grade of fertilizer, quantity of limestone, percentages of calcium carbonate and magnesium carbonate, as applicable, and the percentages of limestone that pass the No. 40 and the No. 10 mesh sieves. Samples of each lot of fertilizer and limestone shall be furnished for testing. Upon completion of project a final check of total quantities of fertilizer and limestone used will be made against total area treated, and if minimum rates of application have not been met, additional quantities of these materials to make up minimum application specified shall be distributed.

4.2 Seed: Contractor shall furnish to the Engineer duplicate signed copies of statement(s) from vendor(s), certifying that each container of seed delivered is labeled in accordance with Federal Seed Act and is at least equal to requirements specified therein. This certification shall be obtained from vendor and shall be furnished before application.

5.0. PREPARATION OF GROUND SURFACE

5.1 General: Equipment, in good operating condition, shall be used for the proper preparation of the ground and for handling and placing all materials. Equipment shall be acceptable before work is started.

5.2 Topsoiling: Topsoil shall be obtained from job site stockpiles formed during stripping and/or excavation operations and shall be free from subsoil, clay lumps, stones, brush, grasses or weeds, excess acids or alkali, or any other material to subsequent, smooth, grading, planting, and maintenance operations.

5.3 Grading: Previously established grades shall be maintained on the areas to be treated in a true and even condition; necessary repairs shall be made to previously graded areas by means of graders or other approved equipment.

5.4 Tillage: After the areas required to be treated have been brought to the grades shown, the soil shall be tilled to a depth of at least 4 inches by plowing, disking, harrowing, or other acceptable operations until the condition of the soil is acceptable. The work shall be performed only during period when beneficial results are likely to be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. Undulations or irregularities in the surface shall be leveled before the next specified operation.

6.0 APPLICATION OF FERTILIZER AND LIMESTONE

6.1 Preplanting fertilization of areas to be seeded: Fertilizer shall be distributed uniformly at a rate of 800 pounds per acre over areas to be seeded and shall be mixed into the soil to a depth of at least 4 inches by disking, harrowing, or other acceptable methods. Application of fertilizer may be part of the operation specified in Section 5.4: TILLAGE of this specifications.

6.2 Liming: Immediately following or simultaneously with incorporation of fertilizer, limestone shall be distributed uniformly at a rate of 4000 pounds per acre, and shall be mixed into the soil to a depth of at least 4 inches by disking, harrowing, or other acceptable methods. Application of limestone along with fertilizer may be part of the operation specified in Section 5.4: TILLAGE of this specifications.

6.3 Leveling: Surface irregularities resulting from tillage, fertilizing, liming, or other operations shall be leveled before seeding.

6.4 Postplanting fertilization: From 40 to 60 days after seeding, ammonium nitrate or its nitrogen equivalent shall be applied uniformly at a rate of 225 pounds per acre over areas seeded. Fertilizer shall be applied when grass blades are dry to minimize burning. The planted area shall be watered to thoroughly moisten the upper 6 inches of the soil surface after the fertilizer is applied.

7.0 PLANTING SEED

7.1 General: A satisfactory method of sowing shall be employed, using approved mechanical power-drawn drills or seeders, or other approved methods. When drills are used, markers or other means shall be provided to ensure that the successive seeded strips will overlap or be separated by a space no greater than 6 inches. When delays in operations extend the work beyond the most favorable planting season for species designated or when conditions are such by reason of drought, high winds, excessive moisture, or other factors that satisfactory results are not likely to be obtained, work shall be halted as directed and resumed only when conditions are favorable or when approved alternate or corrective measure and procedures have been effected. If inspection during or after seeding operations indicates that strips wider than 6 inches have been left unplanted or other areas skipped, additional seed shall be sown.

7.2 Broadcast Seeding: Seeding shall be broadcast either by hand or with acceptable seeding equipment, in combination with fertilizer, or with other acceptable sowing equipment. Seed shall be distributed uniformly over designated areas. Half of the seed shall be sown with sower moving at right angles to first sowing. Seed shall be covered to an average depth of 1/4 inches by brush harrow, spiketooth harrow, chain harrow, cultipacker, hand rake with wood tines, or other approved device. Seed shall not be broadcast during windy weather.

7.3 Drill Seeding: Drill seeding shall be accomplished with approved equipment with drills set not more than 6 inches apart. Seed shall be sown uniformly over designated areas to average depth of 1/4 inch.

7.4 Sodding: All solid sod shall be procured areas where the soil is fertile and contains a high percentage of loamy topsoil, and from areas that have been grazed or mowed sufficiently to form a dense turf.

Mechanical devices, such as sod cutter, may be used for cutting the sod into strips or blocks. Care shall be exercised at all times to retain the native soil on the roots of the sod during the process of excavating, hauling and planting.

The solid sod blocks shall be transplanted within 24 hours from the time of cutting, unless they are stacked at their destination in a manner satisfactory to the Engineer. All solid sod in stacks shall be kept moist and protected from exposure to the air and sun, and from freezing. In no event shall more than two (2) days elapse between the cutting and planting of the solid sod.

Solid sod shall be planted during the period between March 1st and December 15th, unless written permission is given by the Engineer to extend the planting season. The solid sod shall be placed on the prepared surface with the edges in close contact. All cracks between blocks of solid sod shall be closed with small pieces of fresh sod and all cracks too small for sod shall be filled by a light dressing of topsoil. The entire sodded area shall then be compacted and watered to the satisfaction of the Engineer. Rollers, hand tamps or other approved equipment may be used for compacting.

Surfaces of solid sodding which, in the opinion of the Engineer, may slide due to the height and slope of the surface or nature of the soil, shall, upon direction of the Engineer, be "pegged" with wooden pegs driven through the sod blocks into firm earth, sufficiently close to hold the sod in place.

8.0 MAINTENANCE

Seeded areas shall be maintained until all work or designated portions thereof have been completed and accepted. Tall grass and weeds that tend to impede the desired grass species shall be mowed, and any damage resulting from these operations shall be repaired at the Contractor's expense.

9.0 ESTABLISHMENT OF GROWTH

9.1 General : The Contractor shall be responsible for proper care of seeded areas while grass is becoming established for three (3) months after completion of treatment on the entire project, unless desired cover is established in a shorter period of time and the Owner shortens responsibility period. The Contractor shall be responsible for providing a satisfactory stand of grass. A satisfactory stand of grass is determined as a cover of

living grass in which gaps larger than 12 inches square do not occur as determined by an acceptance inspection made at the end of the maintenance period. Maintenance work shall be performed at the Contractor's expense.

9.2 Mowing: Seeded and sodded areas shall be mowed with acceptable mowing equipment to a height of about 4 inches when average height of grass becomes about 8 inches. When amount of cut grass is heavy, grass shall be removed to prevent destruction of underlying turf. If weeds or other undesirable vegetation threatens to impede the growth of planted species, such vegetation shall be mowed, or in case of excessive growth, shall be uprooted, raked and removed from area.

9.3 Refertilizing: The Contractor will determine areas needing refertilization at least 15 days before application is required. Fertilization shall be distributed on designated area during periods when grass is dry. 13-13-13 grade fertilizer shall be applied uniformly at a rate of 800 pounds per acre. Fertilizer conforming to physical condition, packaging and marking as specified hereinbefore shall be provided.

9.4 Reseeding: The Contractor will determine areas requiring reseeding at least 15 days before period specified for reseeding. Seed specified hereinbefore shall be drilled at rates hereinbefore specified, in a manner that will cause minimum disturbance to existing stand of grass, and at an angle of not less than 15 degrees from direction of previously seeded rows.

ADVERTISEMENT FOR BIDS

NOTICE is hereby given that the City Clerk of the **City of Hattiesburg**, MISSISSIPPI, will receive sealed bids until **10:00 A.M.** on **August 9, 2018** in City Council Chambers at City Hall, 200 Forrest Street, Hattiesburg, MS 39401, and then at said location will open and read aloud bids received for furnishing the City's requirements for the following:

INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA HATTIESBURG, MISSISSIPPI

Official bid documents can be downloaded from Central Bidding at www.centralbidding.com. Electronic bids can be submitted at www.centralbidding.com. For any questions relating to the electronic bidding process, please call Central Bidding at 225-810-4814. All bids must be accompanied by bid security equal to 5% of the amount of the bid, in the form of a certified check, cashier's check or a bid bond written by a company properly licensed in Mississippi.

Each BID must be received sealed and marked EXACTLY as follows:

BID:

INFRASTRUCTURE REHABILITATION ARLEDGE STREET & KATIE AVENUE AREA HATTIESBURG, MISSISSIPPI

No bid may be withdrawn for a period of sixty (60) days. The lowest and best proposal received will be accepted, subject to the provisions of Section 31-7-13 of the Mississippi Code of 1972, Annotated and Amended, and other applicable State law; but the Council reserves the right to reject any or all proposals received and to waive informalities.

PUBLISHED by Order of the Council on the ____ day of ____ A.D., 2018.

CITY OF HATTIESBURG, MISSISSIPPI

BY: _____
Kermas Eaton, City Clerk

Publish on July 12, 2018 and July 19, 2018
City of Hattiesburg
Return PROOF to City Clerk's Office
PO Box 1898
Hattiesburg, MS 39403

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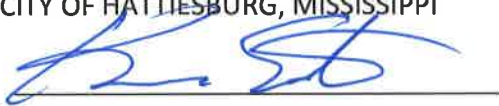
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City of Hattiesburg

Return PROOF to City Clerk's Office

PO Box 1898

Hattiesburg, MS 39403

City of Hattiesburg, MS

*200 Forrest St.
P.O. Box 1898
Hattiesburg, MS 39401*



Meeting Agenda - Draft

Monday, July 2, 2018

4:00 PM

Council Chambers

City Council - Agenda Review

1. Agenda Review.

2. Citizens' Forum.