GENERAL NOTES

1. UNLESS SHOWN OR OTHERWISE STATED ON THESE DRAWINGS, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS.

2. THE TOPS OF INLETS AND MANHOLES AS NOTED ON THE PLANS MAY VARY SO AS TO MEET PROPOSED TOP OF CURB ELEVATIONS OR PAVEMENT ELEVATIONS. THE FIELD ENGINEER SHALL LOCATE INLETS AND MANHOLES WITH REFERENCE TO PROPOSED PAVING PLANS OF THE PERTINENT PAVING IMPROVEMENTS.

3 CONNECTING TO EXISTING STRUCTURES;
PRIOR TO LAYING SEWER LINES USING EXISTING STUBS IN EXISTING STRUCTURES, THE CONTRACTOR SHALL EXPOSE AND VERIFY THE ELEVATION, GRADE AND ALIGNMENT OF EXISTING STUBS AND NOTIFY THE ENGINEER OF ANY DEVIATION FROM THE PLAN. WHERE CONNECTION TO AN EXISTING STRUCTURE THAT DOES NOT HAVE AN EXISTING STUB OR THE STUB IS UNUSABLE DUE TO ELEVATION GRADE OR ALIGNMENT, THE CONTRACTOR SHALL BORE CUT INTO EXISTING STRUCTURE WALL TO MAKE CONNECTION USING APPROVED WATER STOP GASKET, AND RESHAPE THE EXISTING INVERT TO PROVIDE SMOOTH FLOW. THE COST OF CONNECTING TO EXISTING STRUCTURES IS INCIDENTAL TO THE PROJECT.

4. ALL STUBS AND PLUGGED PIPES SHALL BE LOCATED WITH GREEN PLASTIC TAPE IN THE SAME MANNER AS RISERS.

5. COST OF EXCAVATION, HAULING AND DUMPING OF EXCESS EXCAVATION SHALL BE SUBSIDIARY TO THE PROJECT.

6. ALL CONCRETE SHALL BE STANDARD PAVING MIX UNLESS OTHERWISE NOTED.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR SHALL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.

8. TREES TO BE REMOVED ARE MARKED ⊗. ALL TREES WHICH IN THE OPINION OF THE FIELD ENGINEER CAN BE SAVED. SHALL BE SAVED.

9. CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF CONSTRUCTION SCHEDULING.

10. EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS COMPANIES AND IS EITHER FROM COMPANY UTILITY DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.

11. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF SEVENTY-TWO (72) HOURS TO UTILITY COMPANIES TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL	800-344-7233
	OR 687-2470 (LOCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF EMERGENCY:

COX COMMUNICATIONS (CABLE)	262-0661
WESTAR (ELECTRIC)	261-6512
KANSAS GAS SERVICE (GAS)	832-3101
SBC (TELEPHONE)	800-870-8390
CITY OF WICHITA WATER & SEWER	262-5000
AQUILA (GAS)	946-0096
RAYTHEON	676-7911

12. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

13. TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.

14. ALL DISTURBED AREAS TO BE SEEDED WITH RYE GRASS AT A RATE OF 200 LBS. PER ACRE WITHIN 10 DAYS OF CONSTRUCTION. CONTRACTOR TO PREPARE GROUND PER CITY SPECIFICATIONS. COST IS SUBSIDIARY TO SITE PREPARATION AND RESTORATION.

NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM UNDER CONTRACT WITH THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR THE PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR WITHOUT SUCH INSPECTION NOR SHALL ANY WORK BE COMMENCED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER.

PRIVATE

STORM SEWER PLANS FOR

CARMAX SITE # 7267

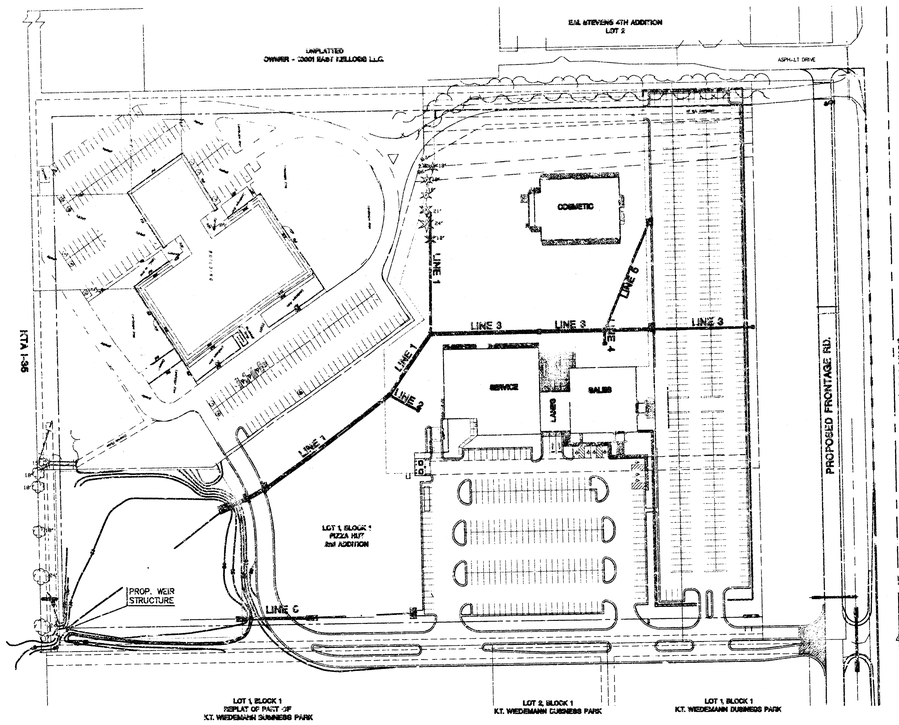
PIZZA HUT 2ND ADDITION

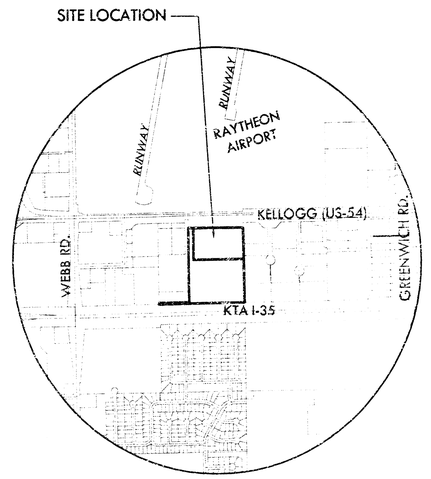
PROJECT NO. 1517PPS

OCA 607861

CITY OF WICHITA, KANSAS

JIM ARMOUR, P.E. - ACTING CITY ENGINEER





VICINITY MAP

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PLAN & PROFILE – LINE 1
3	PLAN & PROFILE – LINES 1 & 2
4	PLAN & PROFILE – LINES 3, 4 & 5
5	PLAN & PROFILE – LINE 6
6-9	STORM SEWER DETAILS
10	WIER DETAILS
11-13	BMP DETAILS

BENCHMARKS

BM#1 CITY OF WICHITA BENCHMARK DISK 60' NORTH AND 23' EAST OF NE COR. NW ¼, SEC. 28, T27S, R2E. 141' NORTH AND 22' EAST OF NE COR. PIZZA HUT 2ND ADDITION.

ELEV.=1358.74 NGVD 1929

SCALE: 1" = 100'

100 0 100 200

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA

STORM SEWERS VRH 4/8/05

John R. Ko 3/24/05

AS-BUILT JUNE 2005

H:\JWL\03121\DWG\SWS\03121_DT.DWG

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

CARMAX SITE # 7267
PROJECT NAME

STORM SEWER TITLE SHEET
SHEET TITLE

MKEC	MKEC	MKEC
DESIGN BY:	DRAWN BY:	CHECKED BY:
JANUARY 2005	03121	1 / 13
DATE	JOB NO.	SHEET/OF

18 14 04 19

CARMAX
THE AUTO SUPERSTORE
STORM WATER - LINES 1 & 2

STA. 10+29.80, LINE 1=
CONST. 10'X3' TYPE 1A
CURB INLET
INLET TOP =1358.39 AB
PROVIDE SEDIMENT BARRIER
~~N1682795.83~~ N1682792.68 AB
~~E1683615.28~~ E1683613.12 AB

STA. 10+67.34, LINE 1=
CONST. 10'X3' TYPE 1A
CURB INLET
INLET TOP =1358.39 AB
PROVIDE SEDIMENT BARRIER
~~N1682827.52~~ N1682826.67 AB
~~E1683596.68~~ E1683596.09 AB

STA. 13+02.73, LINE 1=
STA. 10+00, LINE 2
INSTALL TYPE "A" SHALLOW MH
(6' DIA) W/FRAME & GRATE
(DEETER #1927 OR APPROVED EQUAL)
INLET TOP =~~1358.50~~ 1358.64 AB
PROVIDE SEDIMENT BARRIER
~~N1683015.07~~ N1683017.88 AB
~~E1683460.58~~ E1683460.26 AB

INSTALL 31 S.Y. OF LIGHT
STONE RIP-RAP
W/ GROUTED STONE
TOE WALL

DETENTION AREA
100 YR.=1355.2

STA. 10+00, LINE 1
INSTALL 53"x34" END SECTION

PROP. ENTRY DRIVE

PROP. SITE WALL

PROP. PAVEMENT

PROP. 6" WTR.

SERVICE
FF=1359.70

PIZZA HUT 2nd ADDITION
LOT 1, BLOCK A

STA. 14+14.11, LINE 1
INSTALL 2-DOUBLE DROP INLET
INLET TOP =1358.60 AB
PROVIDE SEDIMENT BARRIER
~~N1683083.66~~ N1683083.63 AB
~~E1683370.13~~ E1683369.65 AB

STA. 10+50.63, LINE 2
INSTALL TYPE "A" SHALLOW MH
(4'DIA.) W/FRAME & GRATE
(DEETER # 1927 OR APPROVED EQUAL)
INLET TOP =~~1358.50~~ 1358.65 AB
PROVIDE SEDIMENT BARRIER
~~N1683063.15~~ N1683062.66 AB
~~E1683483.64~~ E1683483.41 AB

NOTE
RIPRAP SHALL BE INSTALLED ACCORDING TO STD SPEC WITH TOE WALLS ON ALL UNPROTECTED EDGES. THE TOE WALL SHOWN ON THE PLANS SHALL BE IN ADDITION TO THE STD SPEC.

PLAN LINES 1 & 2

SCALE: 1"=20'

SCALE: 1"=20'

AS-BUILT JUNE 2005

PROFILE LINE 1

SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'

PROFILE LINE 2

SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'

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CARMAX
THE AUTO SUPERSTORE
STORM WATER - LINES 1 & 3

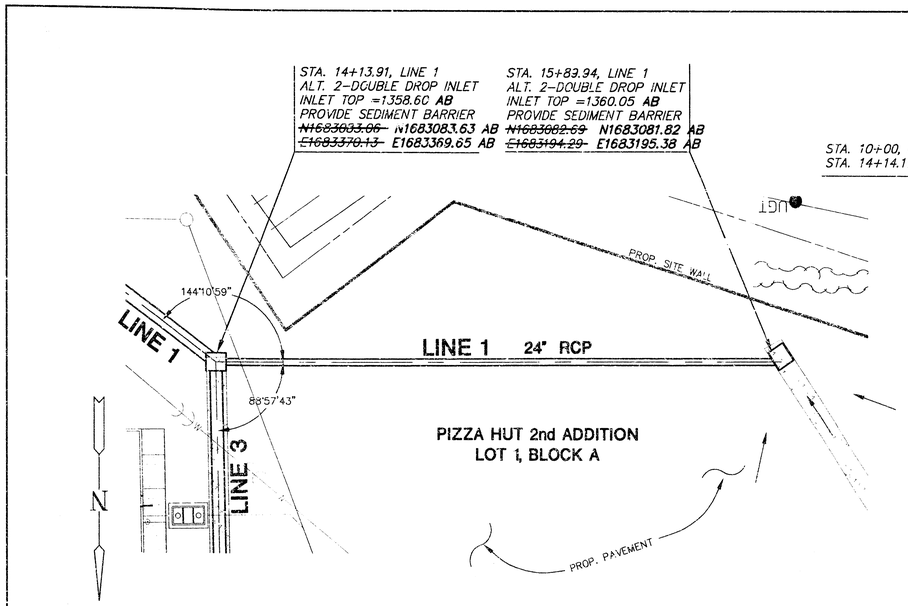
STA. 14+13.91, LINE 1
ALT. 2-DOUBLE DROP INLET
INLET TOP =1358.60 **AB**
PROVIDE SEDIMENT BARRIER
~~N1683033.06~~ N1683083.63 **AB**
~~E1683370.13~~ E1683369.65 **AB**

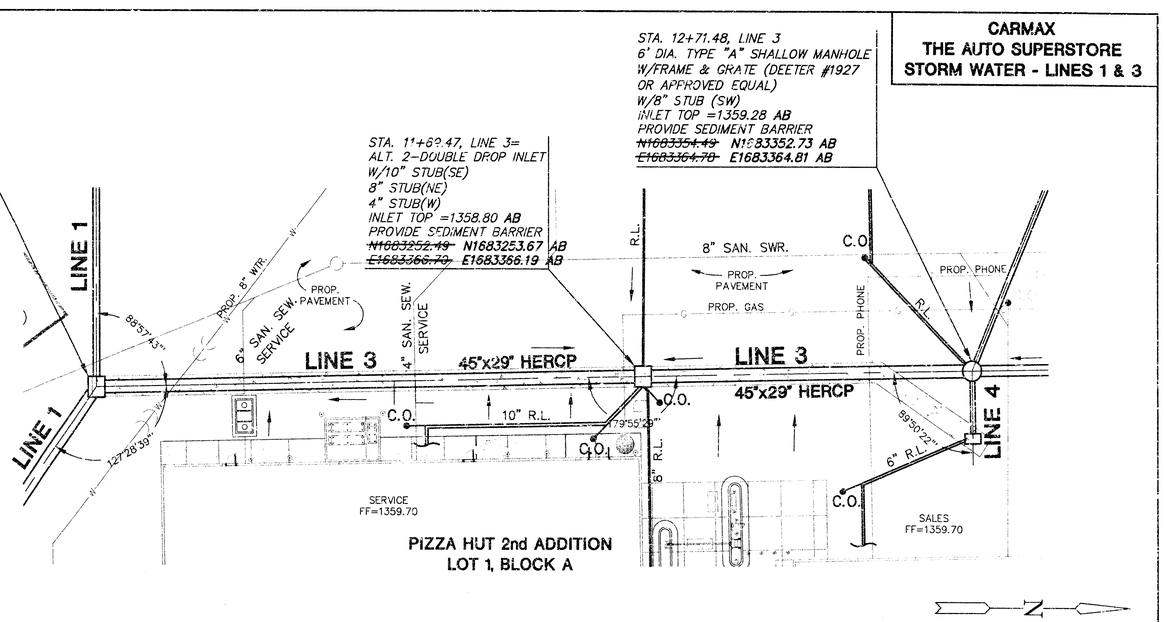
STA. 15+83.94, LINE 1
ALT. 2-DOUBLE DROP INLET
INLET TOP =1360.05 **AB**
PROVIDE SEDIMENT BARRIER
~~N1683082.69~~ N1683081.82 **AB**
~~E1683194.29~~ E1683195.38 **AB**

STA. 10+00, LINE 3=
STA. 14+14.11, LINE 1=

STA. 11+69.47, LINE 3=
ALT. 2-DOUBLE DROP INLET
W/10" STUB(SE)
8" STUB(NE)
4" STUB(W)
INLET TOP =1358.80 **AB**
PROVIDE SEDIMENT BARRIER
~~N1683252.49~~ N1683253.67 **AB**
~~E1683366.79~~ E1683366.19 **AB**

STA. 12+71.48, LINE 3
6' DIA. TYPE "A" SHALLOW MANHOLE
W/FRAME & GRATE (DEETER #1927
OR APPROVED EQUAL)
W/8" STUB (SW)
INLET TOP =1359.28 **AB**
PROVIDE SEDIMENT BARRIER
~~N1683354.49~~ N1683352.73 **AB**
~~E1683364.78~~ E1683364.81 **AB**





SCALE: 1"=20'
20 10 0 20

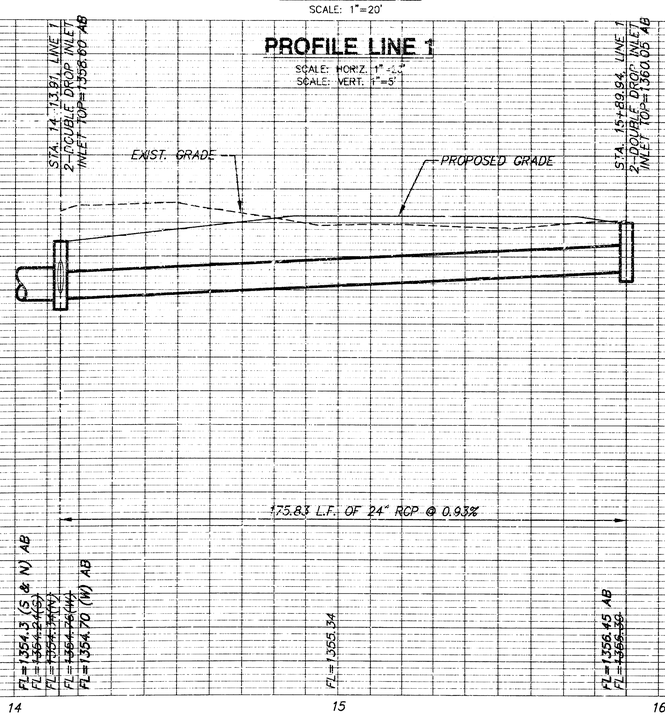
PLAN LINE 1
SCALE: 1"=20'

PLAN LINE 3
SCALE: 1"=20'

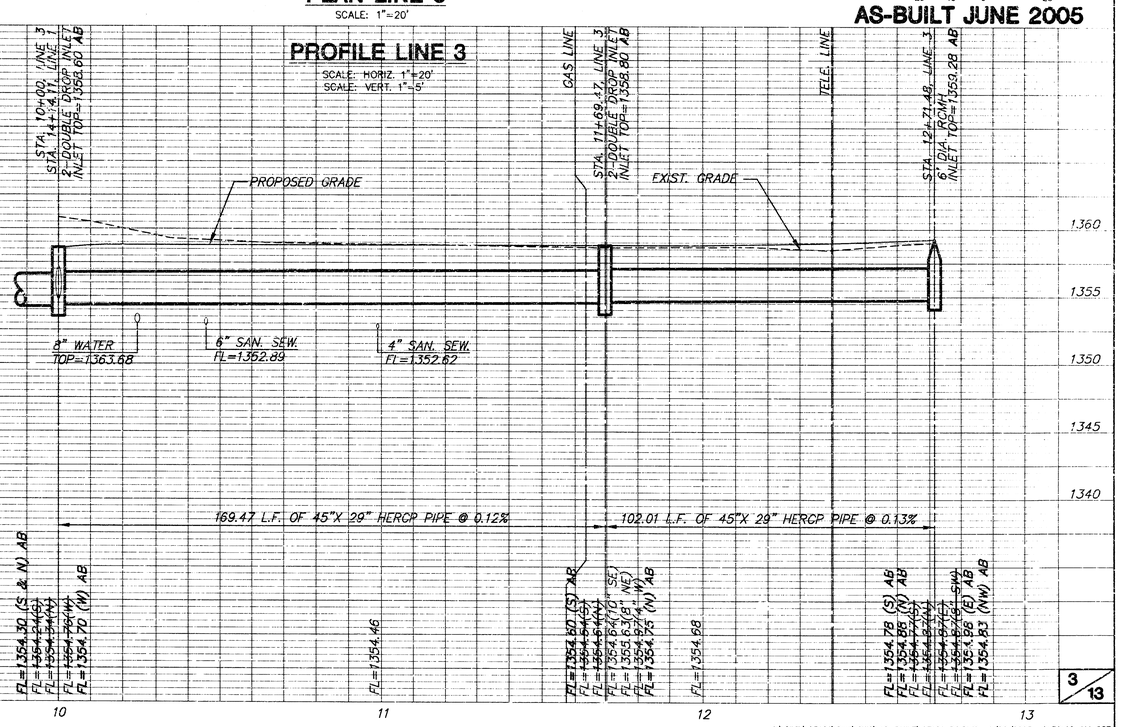
SCALE: 1"=20'
20 10 0 20

AS-BUILT JUNE 2005

PROFILE LINE 1
SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'



PROFILE LINE 3
SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'



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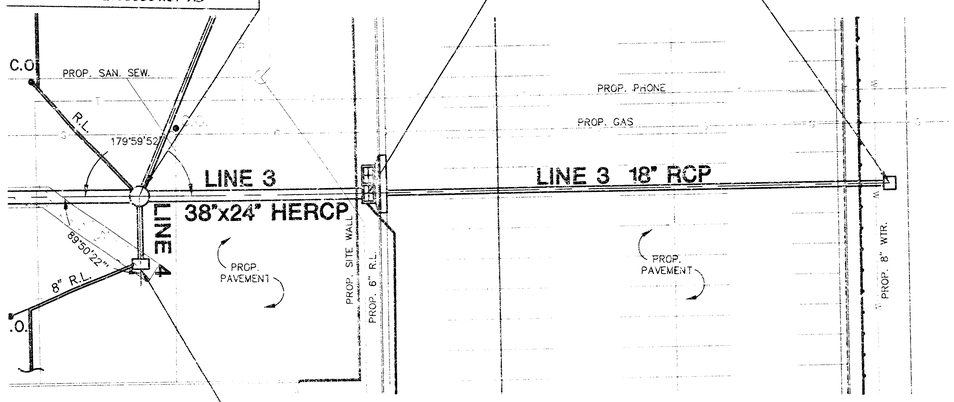
CARMAX
THE AUTO SUPERSTORE
STORM WATER - LINES 3, 4, & 5

STA. 12+71.48, LINE 3=
STA. 10+00.00, LINE 4
INSTALL 6' DIA. TYP "A" SHALLOW MH
W/FRAME & GRATE (DEETER # 1927
OR APPROVED EQUAL)
W/8" STUB(SW)
INLET TOP =1359.28 AB
PROVIDE SEDIMENT BARRIER
~~N1683351.49~~ N1683352.73 AB
~~E1683364.78~~ E1683364.81 AB

STA. 13+43.32, LINE 3
TYPE 1A CURB INLET 10'X3'
W/8" STUB (E)
INLET TOP =1358.65 AB
PROVIDE SEDIMENT BARRIER
~~N1683425.43~~ N1683425.15 AB
~~E1683363.44~~ E1683360.93 AB

STA. 15+03.72, LINE 3
2'x4' DROP INLET
INLET TOP =1360.20 AB
PROVIDE SEDIMENT BARRIER
~~N1683586.68~~ N1683588.37 AB
~~E1683360.31~~ E1683360.31 AB



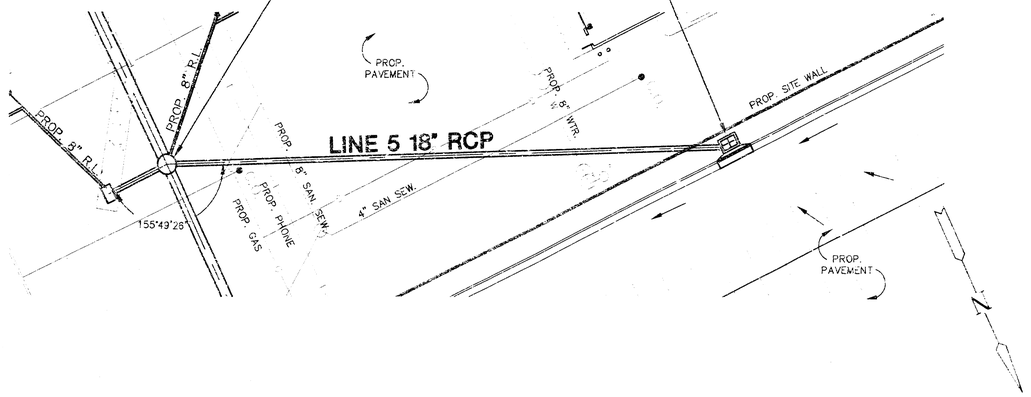
STA. 10+20.00, LINE 4
DOUBLE DROP INLET 2'x4'
W/8" STUB (SE)
INLET TOP =~~1358.60~~ 1358.32 AB
PROVIDE SEDIMENT BARRIER
N1683352.66 AB
E1683384.79 AB

SCALE: 1"=20'
20 10 0 20

PLAN LINES 3 & 4
SCALE: 1"=20'

STA. 10+00.00, LINE 5=
STA. 12+71.48, LINE 3
INSTALL 6' DIA. TYP "A" SHALLOW MH
W/FRAME & GRATE (DEETER # 1927
OR APPROVED EQUAL)
INLET TOP =1359.28 AB
PROVIDE SEDIMENT BARRIER
~~N1683354.49~~ N1683352.73 AB
~~E1683364.78~~ E1683364.81 AB

STA. 11+75.67, LINE 5=
5'X3' TYPE 1A CURB INLET
INLET TOP =1361.25 AB
PROVIDE SEDIMENT BARRIER
~~N1683423.29~~ N1683422.23 AB
~~E1683203.45~~ E1683203.90 AB

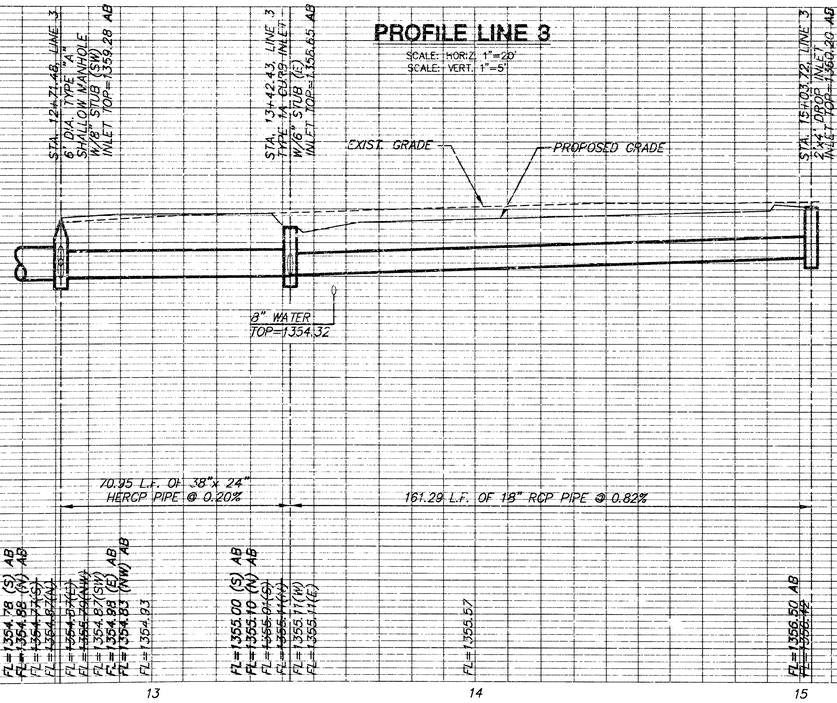


SCALE: 1"=20'
20 10 0 20

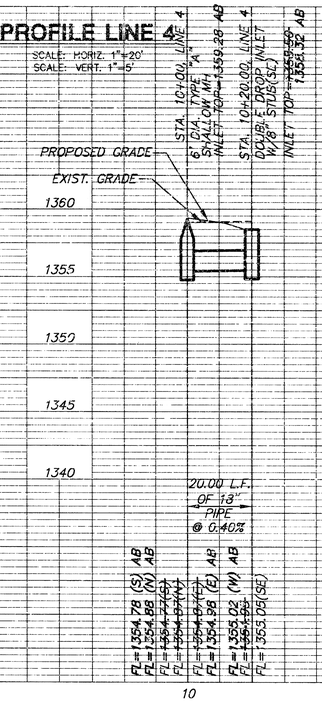
PLAN LINE 5
SCALE: 1"=20'

AS-BUILT JUNE 2005

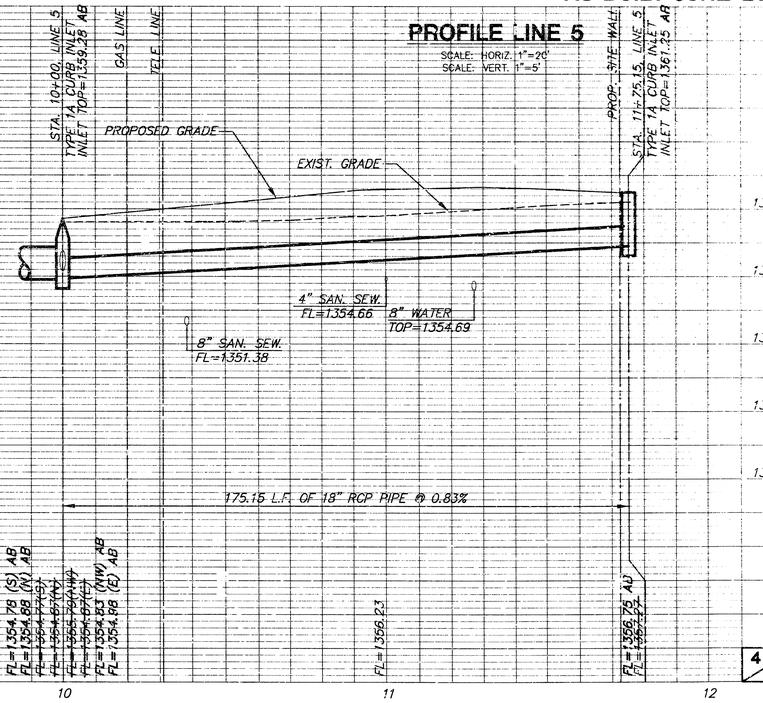
PROFILE LINE 3
SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'



PROFILE LINE 4
SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'



PROFILE LINE 5
SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'



13 14 15 10 10 11 12

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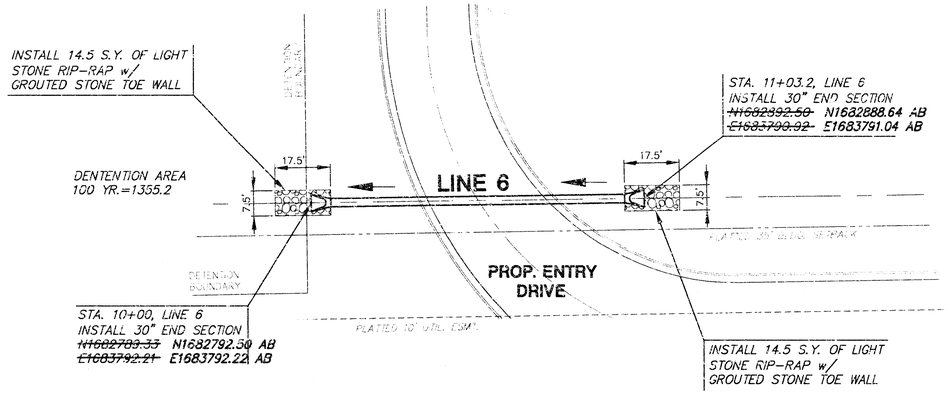
CARMAX
THE AUTO SUPERSTORE
STORM WATER - LINE 6



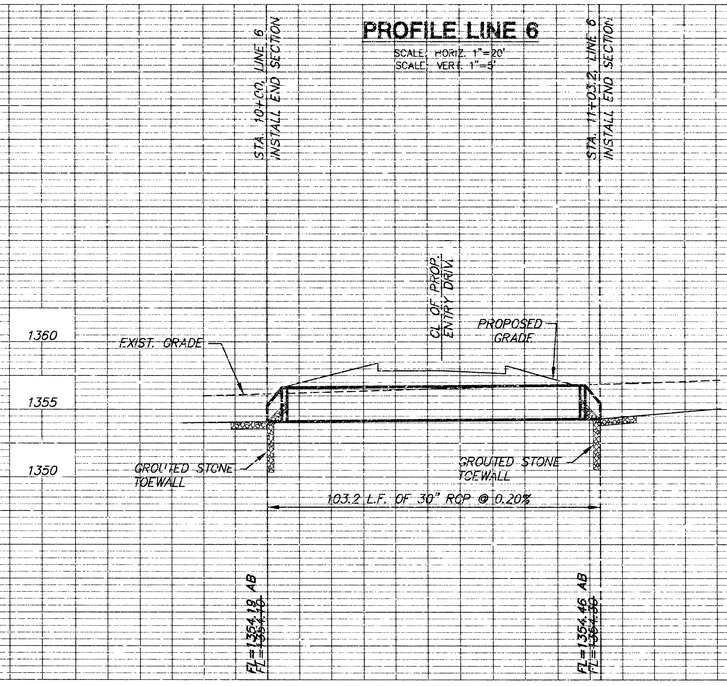
NOTE
RIPRAP SHALL BE INSTALLED ACCORDING TO STD SPEC WITH TOE WALLS ON ALL UNPROTECTED EDGES. THE TOE WALL SHOWN ON THE PLANS SHALL BE IN ADDITION TO THE STD SPEC.

PLAN LINE 6
SCALE: 1"=20'

SCALE: 1"=20'

AS-BUILT JUNE 2005

PROFILE LINE 6
SCALE: HORIZ. 1"=20'
SCALE: VERT. 1"=5'



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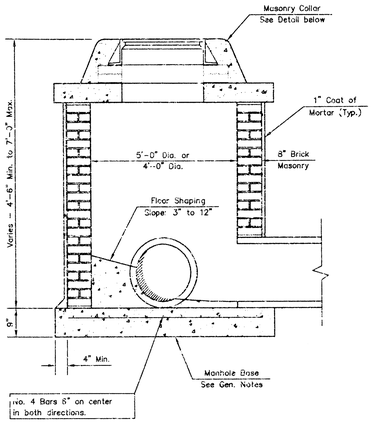
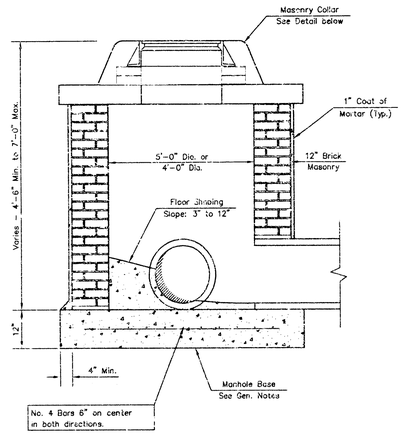
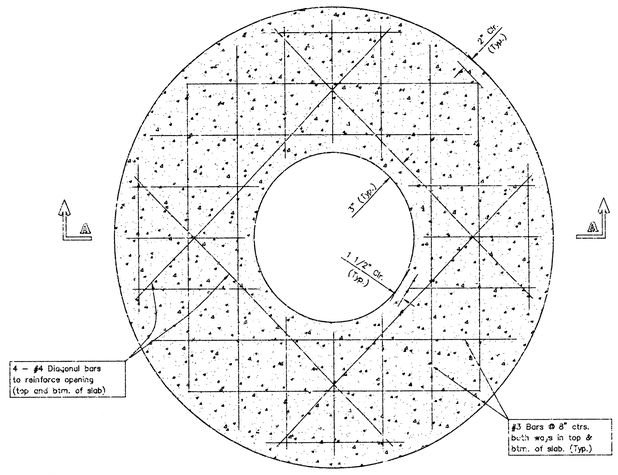
CARMAX #7267
WICHITA, KANSAS
STORM SEWER DETAILS



SHALLOW TYPE "A" MANHOLE



SHALLOW TYPE "B" MANHOLE



PLAN

GENERAL NOTES

1. Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in manhole bases shall conform to the requirements of concrete for concrete pavement construction as specified in the city standard paving specifications using city concrete cement mix without air entraining admixture. Mortar shall be placed around the manhole ring as shown on the drawings when manholes are constructed in unpaved areas. Type "A" shallow manholes can be used on sewers when the manhole is not located within public street pavement. Manholes constructed where pipe sizes are smaller than 24" shall have an inside diameter of 4'. Manholes constructed where pipe sizes are 24" or larger shall have an inside diameter of 5'. Completed manhole shall be without leaks and water tight.

2. Reinforcing steel shall be installed in the manhole bases and shall consist of no. 4 bars placed on 6" centers in both directions. The manhole base reinforcement shall be placed 6" above the bottom of the manhole base. All costs for furnishing and installing reinforcing steel shall be included in the unit price bid for the manhole.

3. The floors of all manholes shall be shaped with flow channels such that the manholes will be self cleaning and free of areas where solids could be deposited as sewage flows through the manhole from all inlet pipes to the outlet pipe. Flow channels shall be formed to match the bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. Manhole floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through manholes shall have the top half removed to neat lines for the full inside diameter of the manhole. Manhole floors shall then be shaped around the bottom half of the pipe which forms the flow channel.

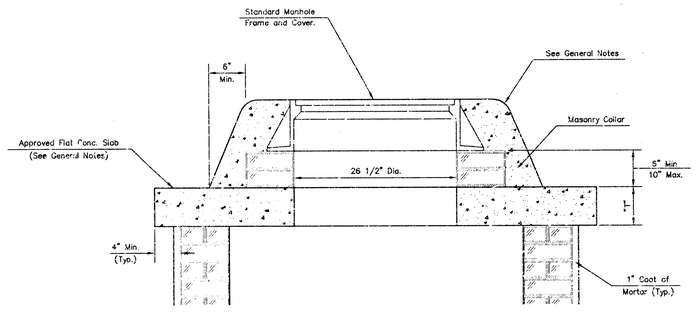
4. Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within manhole excavation or to clay pipe joints adjacent to manhole shall be included in the unit price bid for the manhole.

5. Manhole cover castings and manhole frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawings.

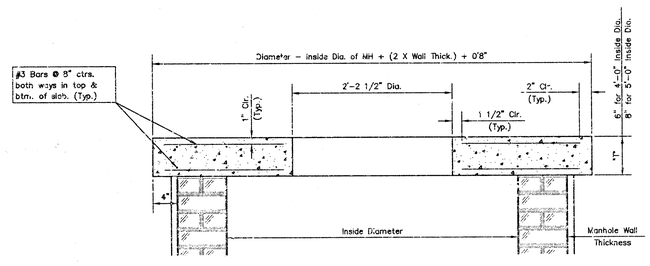
6. The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.

7. Standard shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type and diameter indicated. Standard special shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.

8. All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.

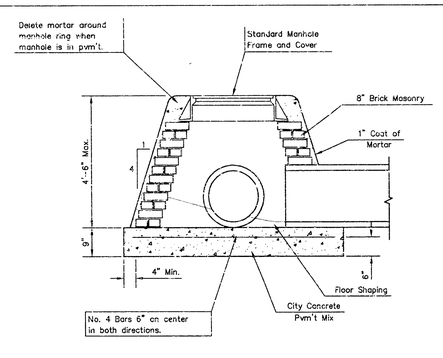


MASONRY COLLAR DETAIL

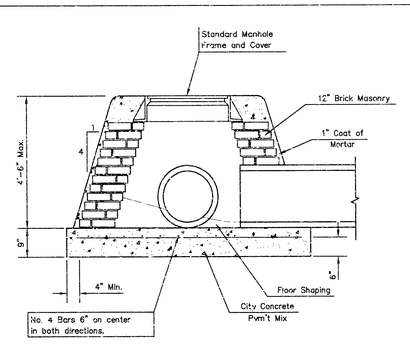


SECTION A-A

FLAT CONCRETE SLAB DETAILS



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

REV. 1/05/01, MCG

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4501
(316) 268-4519 FAX

STANDARD/SPECIAL SHALLOW MANHOLES TYPE 'A' & 'B'

JIM ARMOUR, P.E. – ACTING CITY ENGINEER

PROJECT NUMBER	INDEX CODE
1517PPS	607861
DATE: JAN 2005	SHEET 6 OF 13

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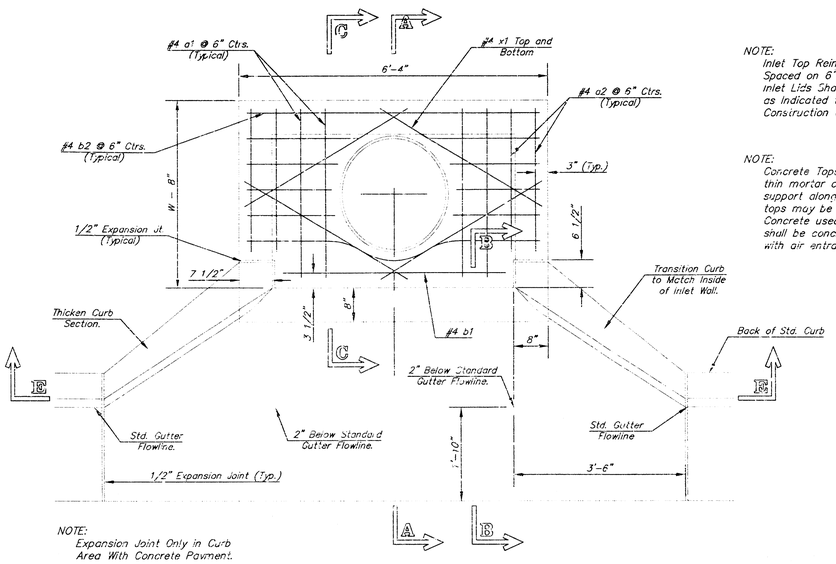
CARMAX #7267
WICHITA, KANSAS
STORM SEWER DETAILS

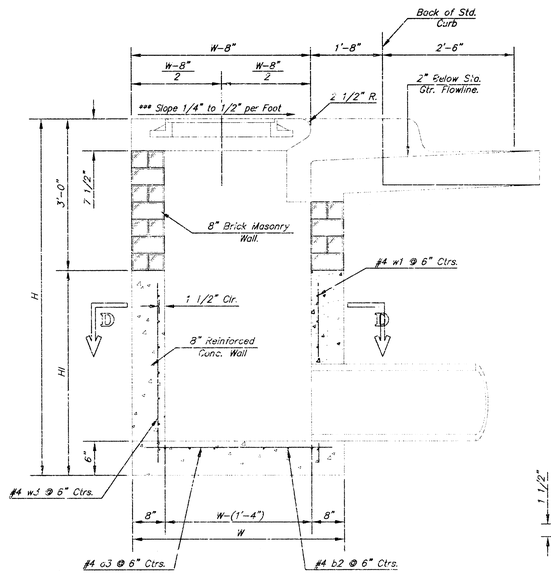


NOTE:
Expansion Joint Only in Curb Area With Concrete Pavement.

PLAN

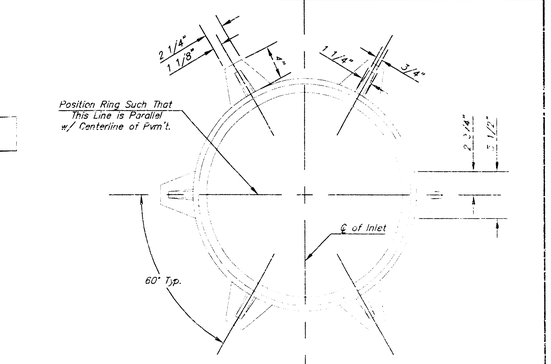
NOTE:
Inlet Top Reinforcing shall be Spaced on 6" Max. Centers. Inlet Lids Shall be Notched Out as Indicated to Facilitate Consiruction of Curb.

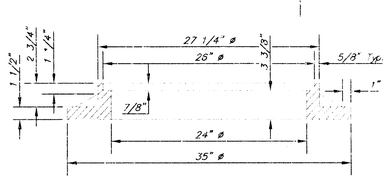
NOTE:
Concrete Tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix with air entrainment.



SECTION A–A

***NOTE: Slope of Inlet Tops to Match Sidewalk or Parking Slopes within Limits indicated.

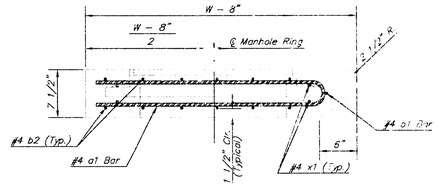




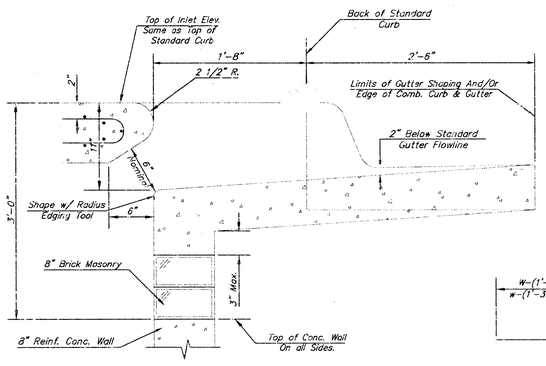
MANHOLE RING AND COVER

Weight = 180 Lbs.

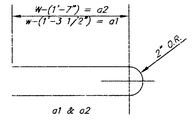
*See City of Wichita Standard Manhole Ring and Cover Detail Sheet for Cover Details to Be Used With Inlet Frame.



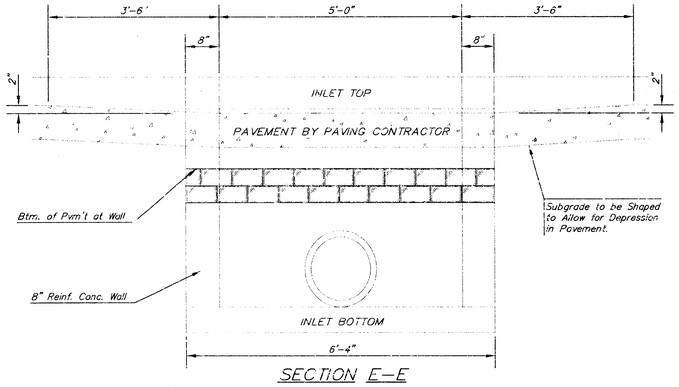
SECTION A–A



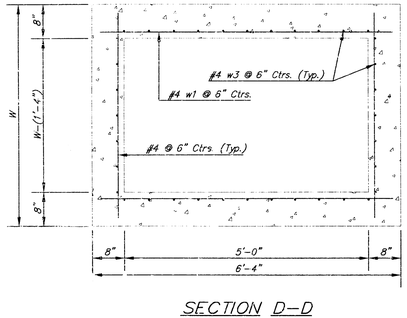
SECTION B–B



BENDING DIAGRAM



SECTION E–E



SECTION D–D

NOTE: Contractor shall have the option of constructing 8" brick masonry walls between the concrete inlet base and top on this inlet when W=6'-4" and H=7'-0" or less.

Additional curb and gutter construction necessary to connect set-back inlet to pavement will be paid for at the unit price bid for each inlet hookup.

Inlet invert shall be shaped with 6 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self-cleaning between all inlet and/or outlet pipes.

The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall

PRECAST SLAB AND FLOOR REINFORCING

		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
* a1	#4	6	6'-7"	6	8'-7"	6	10'-7"	6	12'-7"	6	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	13	4'-1"	13	5'-1"	13	6'-1"	13	7'-1	13	8'-1"
b1	#4	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"
* b2	#4	23	6'-1"	29	6'-1"	35	6'-1"	41	6'-1"	47	6'-1"
x1	#4	8	3'-10"	8	4'-2"	8	4'-6"	8	4'-10"	8	5'-2"

WALL REINFORCING

		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	32	②	36	②	40	②	44	②	48	②

* Field Bend or Cut Reinforcing as Required for Clearance.

① 4 (HI – 12") (HI – 21") Rounded down to nearest 0.5'

② HI – 3"

STANDARD CURB INLET PRECAST TOPS

W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8" x 6'-4" x 7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8" x 6'-4" x 7 1/2"	24" & 30"	0.51±
5'-4"	5'-8" x 6'-4" x 7 1/2"	36" & 42"	0.64±
7'-4"	6'-8" x 6'-4" x 7 1/2"	48" & 54"	0.77±
6'-4"	7'-8" x 6'-4" x 7 1/2"	60" & 66"	0.90±

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4422
(316) 268-4414 FAX

STANDARD TYPE 1-A CURB INLET OPENING = 6" x 5'-0"

JIM ARMOUR, P.E. – ACTING CITY ENGINEER

PROJECT NUMBER	INDEX CODE
1517PPS	607861
DATE: JAN 2005	SHEET 7 OF 13

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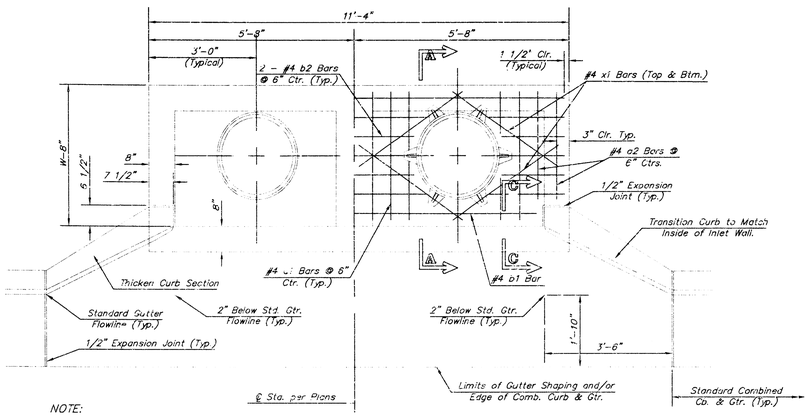
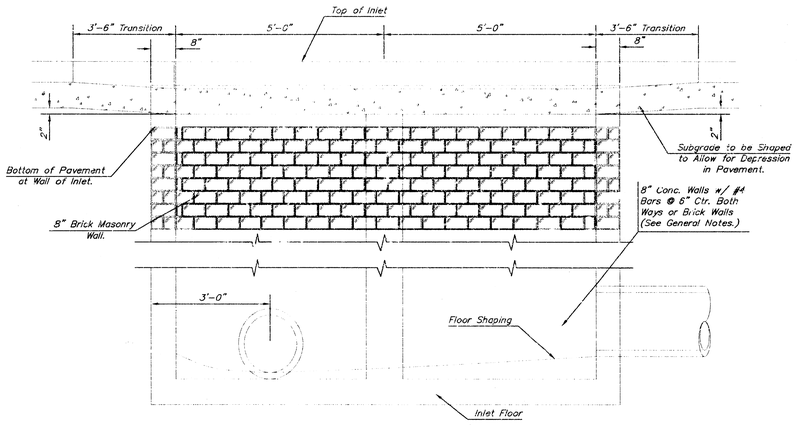


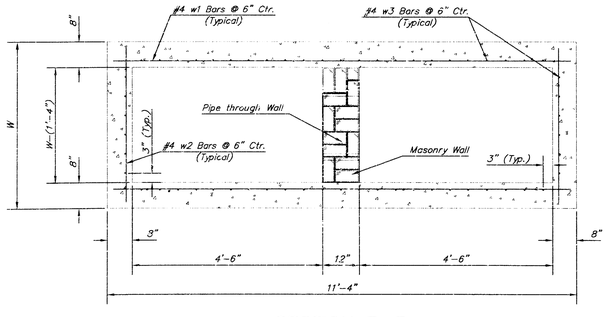
NOTE:
Expansion Joint Only in Curb Area with Concrete Pavement.

PLAN

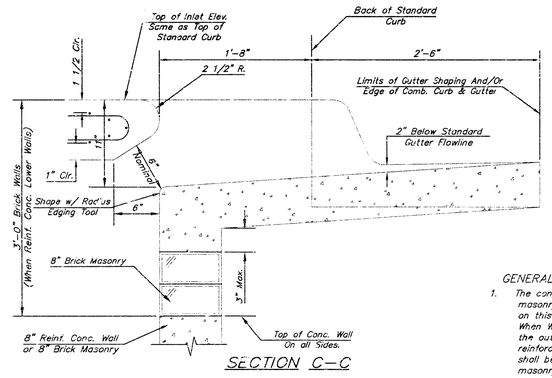
*Left Side Shown Without Slab Reinforcing, Right Side Shown With Slab Reinforcing



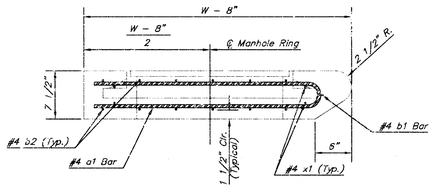
ELEVATION



SECTION B-B



SECTION C-C



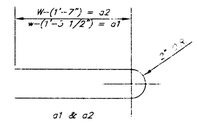
SECTION A-A

PRECAST SLAB AND FLOOR REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
* a1	#4	13	6'-7"	13	8'-7"	13	10'-7"	13	12'-7"	13	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	23	4'-1"	23	5'-1"	23	6'-1"	23	7'-1	23	8'-1"
b1	#4	1	9'-9"	1	9'-9"	1	9'-9"	1	9'-9"	1	9'-9"
* b2	#4	23	11'-1"	29	11'-1"	35	11'-1"	41	11'-1"	47	11'-1"
x1	#4	16	3'-10"	16	4'-2"	16	4'-6"	16	4'-10"	16	5'-2"
WALL REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	52	②	56	②	60	②	64	②	69	②

* Field Bend or Cut Reinforcing as Required for Clearance.
① 4 (H - 12") (H - 21") Rounded down to nearest 0.5'
② H - 3"

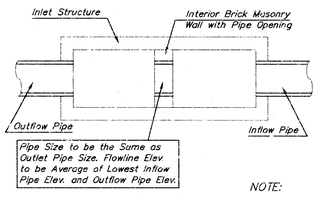
GENERAL NOTES:

1. The contractor shall be required to construct 8" brick masonry walls between the concrete inlet base and top on this inlet when W=6'-4" or less and H=7'-0" or less. When W is greater than 6'-4" and H is less than 7'-0" the outside inlet walls below the brick stack shall be reinforced concrete construction and the center wall shall be of masonry construction as shown for the masonry wall option.
2. Inlet invert shall be shaped with 8 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self cleaning between all inlet and/or outlet pipes.
3. Concrete tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix.
4. Inlet top reinforcing shall be spaced on 6" max. centers. Inlet lids shall be notched out as indicated to facilitate construction of curb. Bars in inlet top to be field bent or cut to clear manhole ring.
5. The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall.

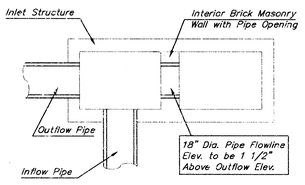


BENDING DIAGRAM

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8" 11'-4" 7 1/2"	21" & SMALLER	0.83±
5'-4"	4'-8" 11'-4" 7 1/2"	24" & 30"	1.03±
6'-4"	5'-8" 11'-4" 7 1/2"	36" & 42"	1.33±
7'-4"	6'-8" 11'-4" 7 1/2"	48" & 54"	1.61±
8'-4"	7'-8" 11'-4" 7 1/2"	60" & 66"	1.87±

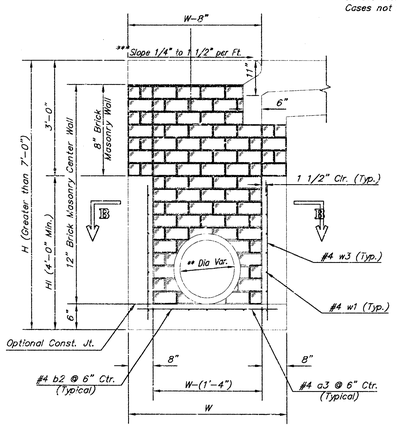


CASE I

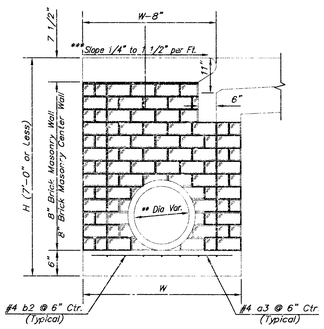


CASE II

NOTE:
Center Wall Pipe Size shall be as Specified in Inlet Construction Notes on the Plan/Profile Sheets for those Cases not Shown Here.

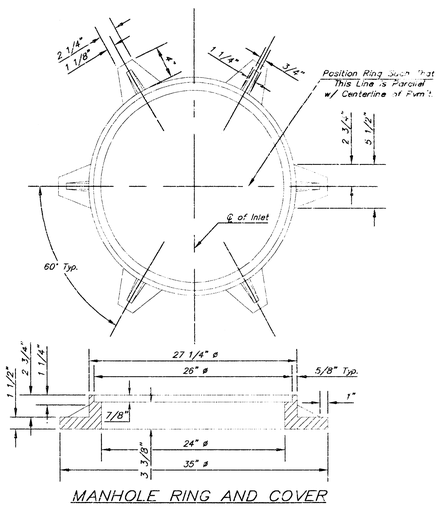


TYPICAL INLET SECTION AT CENTER WALL
(Reinforced Concrete Walls)



TYPICAL INLET SECTION AT CENTER WALL
(Masonry Walls)

NOTES:
** A center wall opening shall be provided by means of a section of reinforced concrete pipe. See Case I and Case II above.
*** Slope of inlet tops to match sidewalk of parking slopes within limits indicated



MANHOLE RING AND COVER
Weight = 180 lbs.

*See City of Wichita Standard Manhole Ring and Cover Detail Sheet for Cover Details to Be Used With Inlet Frame.

THE CITY OF WICHITA

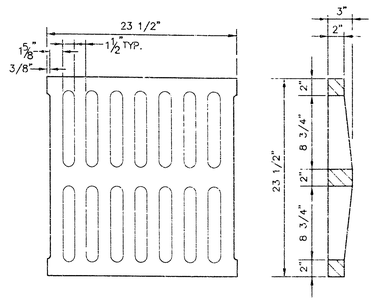
CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4501
(316) 268-4114 FAX

STANDARD TYPE 1-A CURB INLET OPENING = 6" x 10'-0"

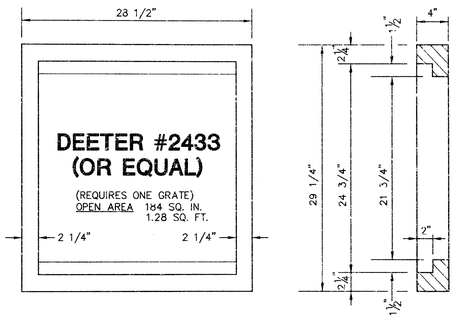
JIM ARMOUR, P.E. - ACTING CITY ENGINEER

PROJECT NUMBER	INDEX CODE
1317PPS	607861
DATE: JAN 2005	SHEET 8 OF 13

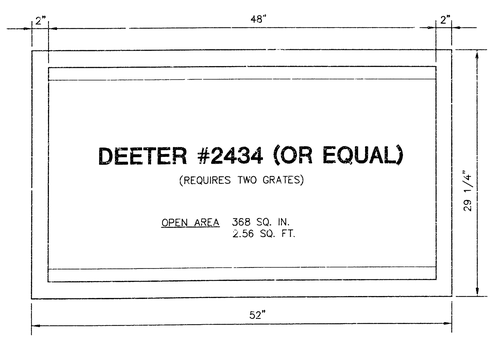
NOTE: GRATES SHALL BE IMPRINTED ON THE TOP SURFACE WITH "CITY OF WICHITA" USING LETTERS AT LEAST 1" IN HEIGHT. OTHER MARKING METHODS MAY BE USED ONLY IF APPROVED BY THE ENGINEER.

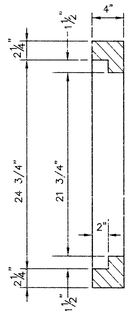


24"x24" GRATE DETAIL

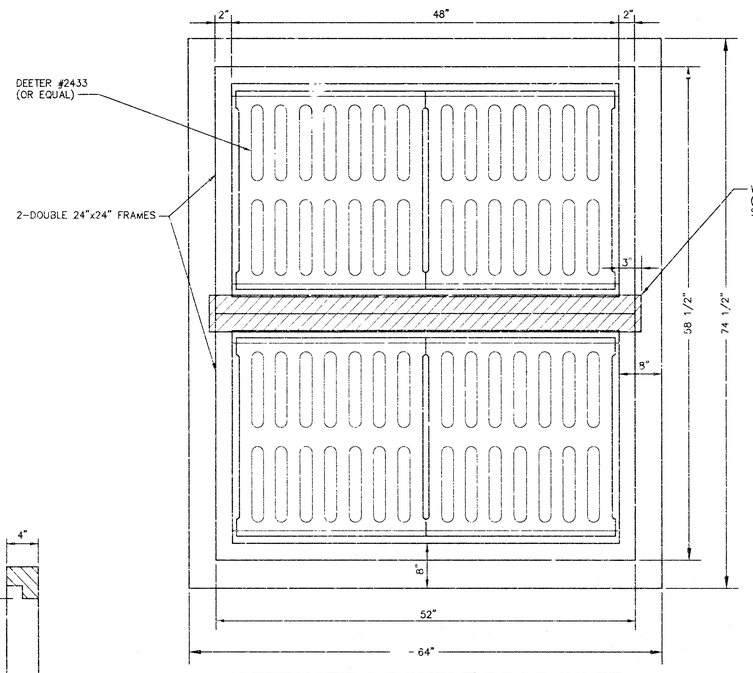


SINGLE 24"x24" FRAME DETAIL



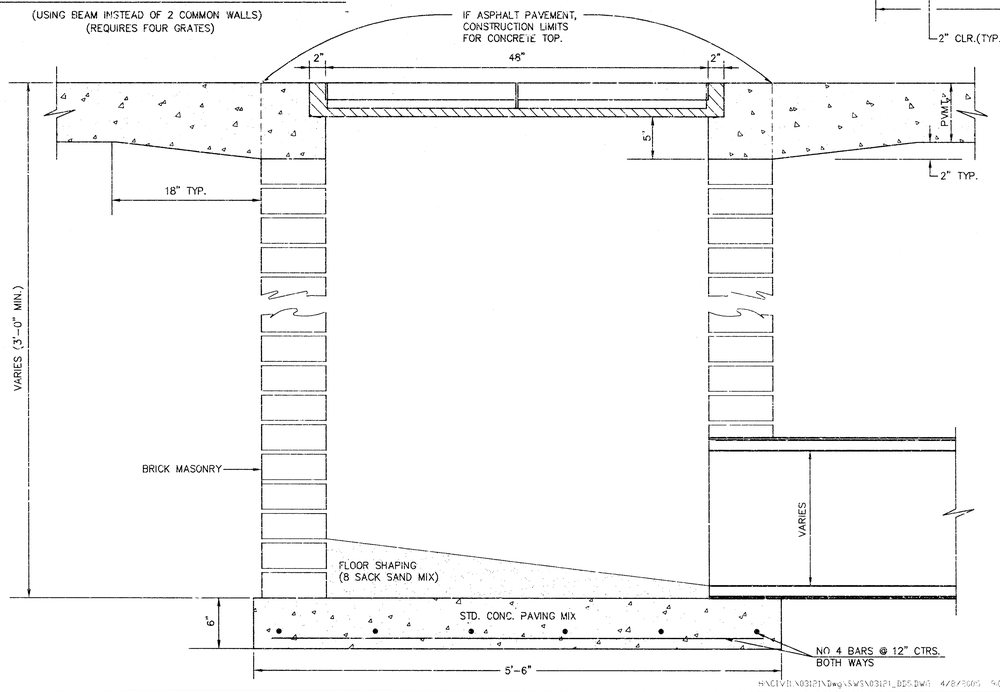


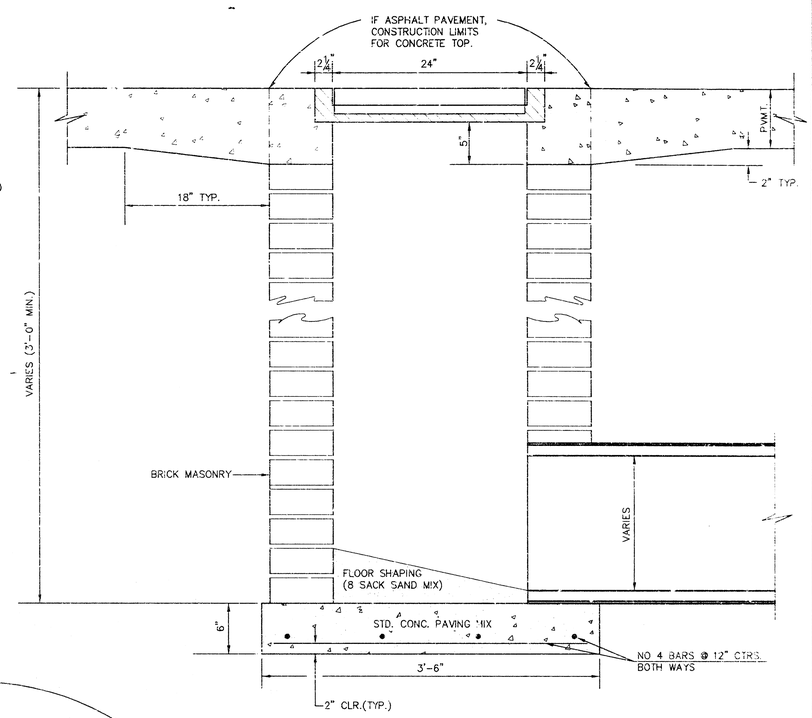
DOUBLE 24"x24" FRAME DETAIL



ALTERNATE 2-DOUBLE DROP INLET

(USING BEAM IMSTEAD OF 2 COMMON WALLS)
(REQUIRES FOUR GRATES)





ORIFICE EQUATION		
$Q=C^*A^*\sqrt{2gh}$ C=0.60		
h (DEPTH)	#2433 (SINGLE)	#2434 (DOUBLE)
0.1	1.95 cfs	3.89 cfs
0.2	2.75 cfs	5.50 cfs
0.3	3.37 cfs	6.74 cfs
0.4	3.89 cfs	7.78 cfs
0.5	4.35 cfs	8.70 cfs
0.6	4.77 cfs	9.53 cfs
0.7	5.15 cfs	10.30 cfs
0.8	5.50 cfs	11.01 cfs
0.9	5.84 cfs	11.67 cfs
1.0	6.15 cfs	12.30 cfs

REVISED: 5-8-90 JNJ

DROP INLET DETAILS

CITY OF WICHITA, KANSAS

Design C.O.W.	Checked by	Checked by	9 / 13
Drawn by	Date	Date JAN 2005	Job No. 03121_DD5

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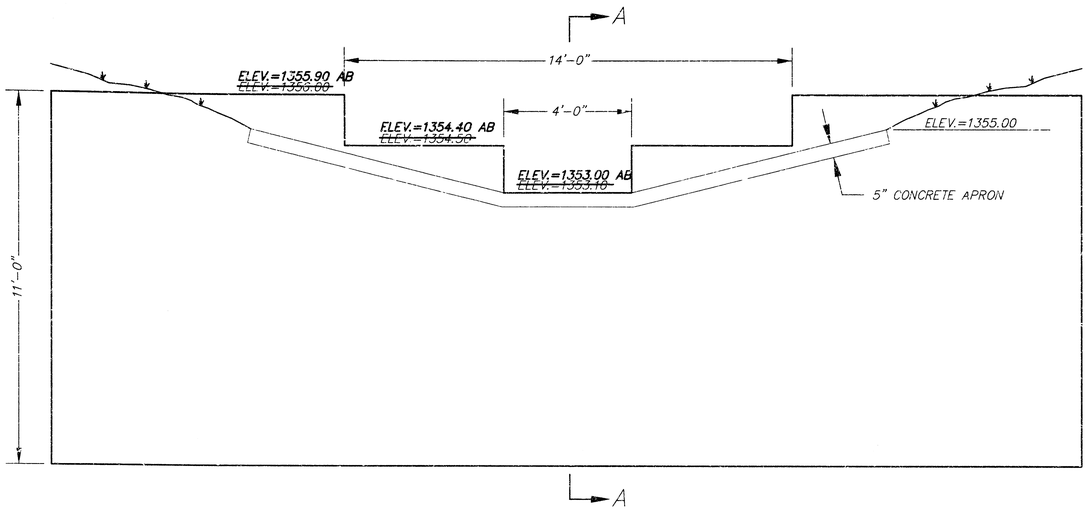
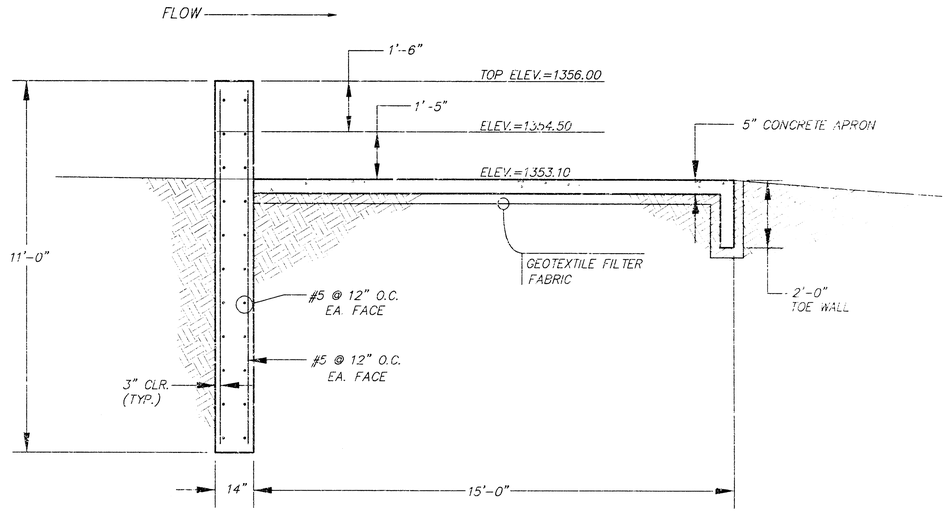


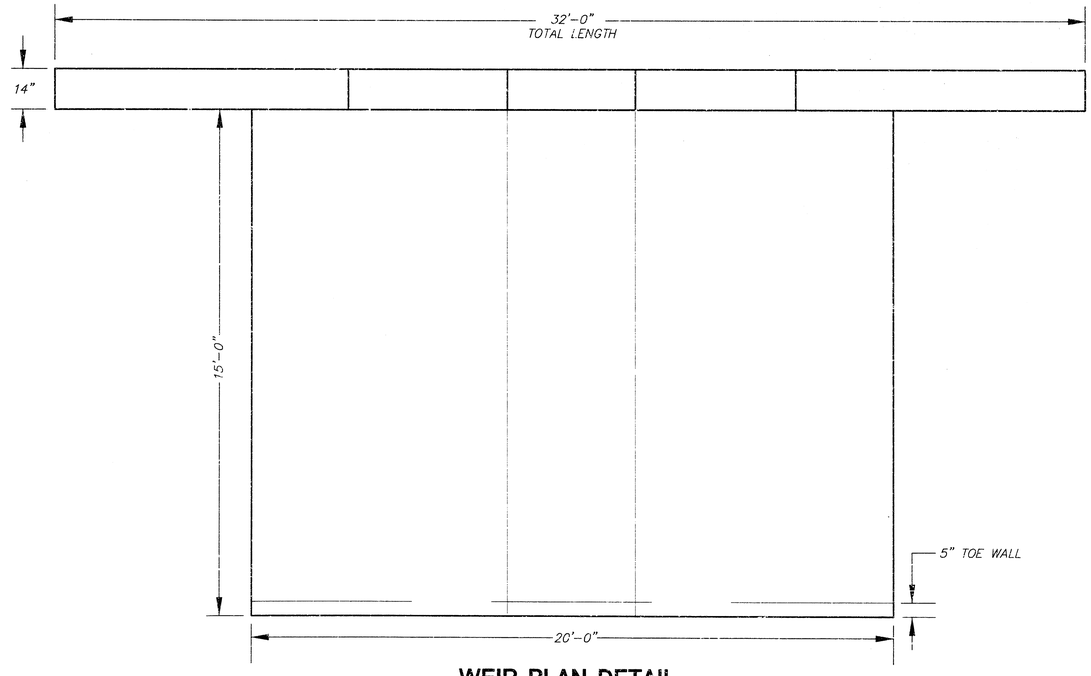
WEIR DOWNSTREAM ELEVATION

1/2"=1'-0"



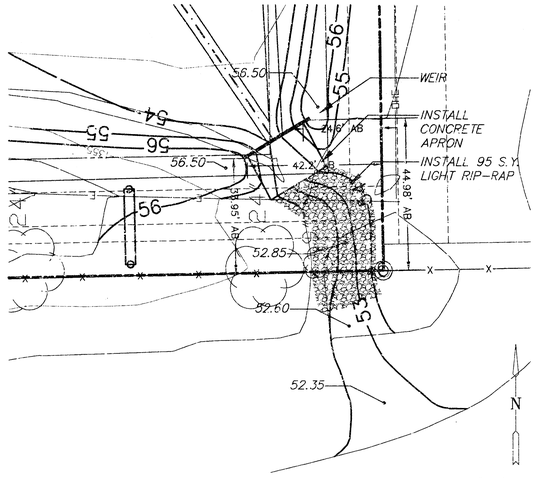
SECTION A-A

1/2"=1'-0"



WEIR PLAN DETAIL

1/2"=1'-0"



PLAN - GRADING

SCALE: 1"=20'

20 10 0 20

GENERAL NOTES

1. All concrete to have minimum compressive strength of 4000 psi at 28 days. Contractor shall submit concrete mix design to County Engineer for approval prior to construction.
2. All concrete shall conform to the current "ACI MANUAL OF CONCRETE PRACTICE".
3. Portland Cement shall conform to ASTM C-150, TYPE I OR III.
4. All aggregate for normal weight concrete shall meet ASTM C33.
5. All reinforcing to meet ASTM A615 or GR. 60.
6. Concrete cover shall be 3" in bottom of footing cast against soil. All other cover shall be 2".
7. All footings shall bear on undisturbed earth or engineered fill at elevations shown on details.
8. Earthwork shall be considered subsidiary to weir construction.
9. Geotextile Fabric shall be Trevira Spunbond #1120 or approved equal.

AS-BUILT JUNE 2005

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 0600

CARMAX SITE # 7267
PROJECT NAME

WEIR DETAILS
SHEET TITLE

MKEC	JFL	MKEC
DESIGN BY:	DRAWN BY:	CHECKED BY:
JANUARY 2005	03121	10 / 13
DATE	JOB NO.	SHEET/OF

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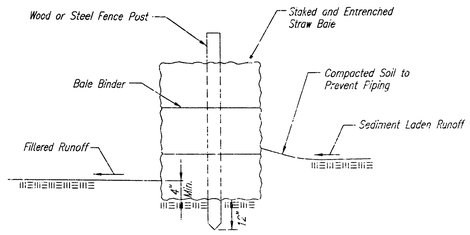


STRAW BALE BARRIERS

Material Specification:

Bale slope barriers may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.
When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow.
Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

List of common placement/installation mistakes to avoid:

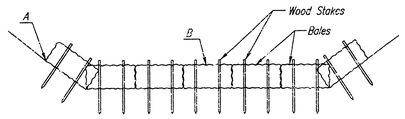
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails.
Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out.
Bale slope barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Are there any points along the slope barrier where water is concentrating?
Does water flow under the slope barrier?
Does water flow through spaces between abutting bales?
Are any bales dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the slope barrier?

NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



STRAW BALE DITCH CHECKS

Material Specification:

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide.
Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch.
The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.
The following table provides check spacing for a given ditch grade:

Ditch Check Spacing

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench-it will be used later.
Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remaindar of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch.
Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

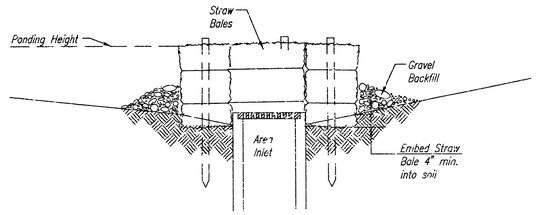
List of common placement/installation mistakes to avoid:

Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale.
Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

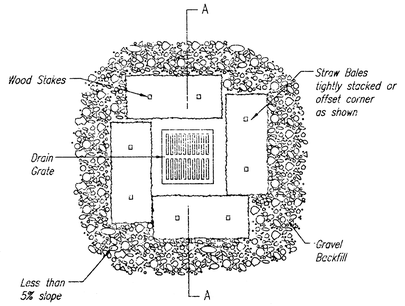
Inspection and Maintenance:

Bale ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow around the ditch check?
Does water flow under the ditch check?
Does water flow through spaces between abutting bales?
Are any bales and/or scour aprons (optional) dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the ditch check?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

Bale area inlet barriers should be placed directly around the perimeter of a drop inlet.
When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper Installation Method:

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide.
Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends.
Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep.
Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

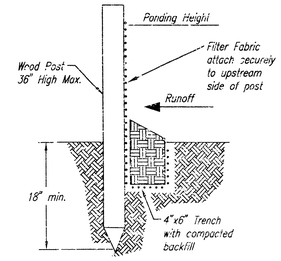
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour.
Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale area inlet barriers should be inspected every 7 days and within 24 hours of a rainfall 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow under the area inlet barrier?
Does water flow through spaces between abutting bales?
Are any bales dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the area inlet barrier?



SILT FENCE BARRIERS

SILT FENCE BARRIERS

Material Specification:

Silt fence fabric should conform to the AASHTO M288 95 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.
When practicable, silt fence slope barriers should be placed along contours to avoid a concentration of flow.
Silt fence slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 6" deep by 4" wide.
Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downslope side of the trench.
Place the edge of the fabric in the trench starting at the top upslope edge. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt-fence fabric should remain exposed.
Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts.
Just downslope of the trench, drive posts into the ground to a depth of at least 18".
Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates.
Do not place silt-fence posts on the upslope side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place silt fence slope barriers in areas with shallow soils underlain by rock. If the barrier is not sufficiently anchored, it will wash out.
Silt fence slope barriers must be dug into the ground-silt fence at ground level does not work because water will flow underneath.

Inspection and Maintenance:

Silt fence slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Are there any points along the slope barrier where water is concentrating?
Does water flow under the slope barrier?
Do the silt fences sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the slope barrier?

CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
1517PPS	607861
DATE: JAN 2005	SHEET 11 OF 13

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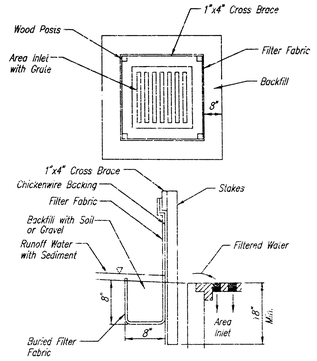


SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The wire or polymeric mesh backing used to help support the silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
The material used to frame the tops of the posts should be 1" by 4" boards.
Silt fence fabric and support backing should be attached to the wooden posts and frame with staples, wire, zip ties, or nails.

Placement:

Place a silt fence drop inlet barrier in a location where it is unlikely to be overtopped.
Water should flow through silt fence, not over it. Silt fence barriers for area inlets often fail when repeatedly overtopped.
When used as a barrierfor area inlets, silt fence fabric and posts must be supported at the top by a wooden frame.
When a silt fence barrier for area inlets is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

Proper installation method:

Excavate a trench around the perimeter of the area inlet that is at least 8" deep by 8" wide.
Drive posts to a depth of at least 18" around the perimeter of the area inlet.
The distance between posts should be 4' or less. If the distance between two adjacent corner posts is more than 4', add another post(s) between them.
Connect the tops of all the posts with a wooden frame made of 1" by 4" boards. Use nails or screws for fastening.
Attach the wire or polymeric-mesh backing to the outside of the post/frame structure with staples, wire, zip ties, or nails.
Roll out a continuous length of silt fence fabric long enough to wrap around the perimeter of the area inlet. Add more length for overlapping the fabric joint. Place the edge of the fabric in the trench, starting at the outside edge of the trench. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Attach the silt fence to the outside of the post/frame structure with staples, wire, zip ties, or nails. The joint should be overlapped to the next post.

Note: When a silt fence barrier for area inlet is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

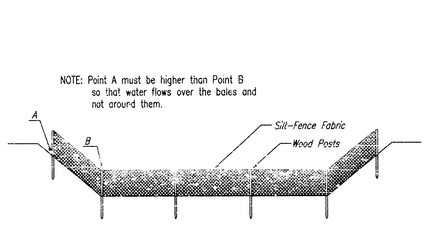
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence barrier for area inlet-not over it. Place a silt fence barrier for area inlet in a location where it is unlikely to be overtopped. Silt fence barrier for area inlets often fail when repeatedly overtopped.
Do not place posts on the outside of the silt fence barrier for area inlet. In this configuration, the force of the water is not resisted by the posts, but only by the staples (wire, zip-ties, nails, etc.). The silt fence will rip and fail.
Do not install silt fence barrier for area inlets without framing the top of the posts. The corner posts around area inlets are stressed in two directions whereas a normal silt fence is only stressed in one direction. This added stress requires more support.

Inspection and Maintenance:

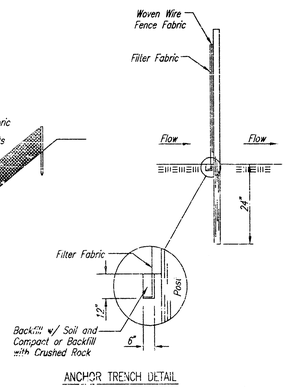
Silt fence barrier for area inlets should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow under the silt fence?
Does the silt fence sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the area inlet barrier?



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)



ANCHOR TRENCH DETAIL

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped.
Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped.
Silt fence ditch checks should be placed perpendicular to the flowline of the ditch.
The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

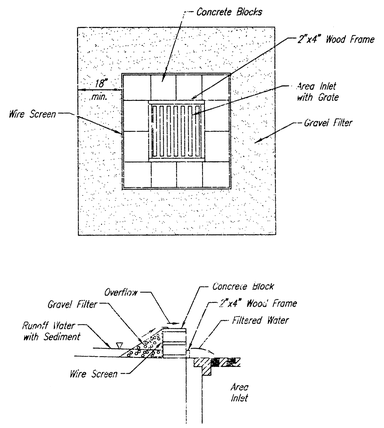
Ditch Grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide.
Extend the trench in a straight line along the entire length of the proposed ditch check.
Place the soil on the upstream side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downstream side of the trench.
Place the edge of the fabric in the trench starting at the top upstream edge of the trench.
Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence.
Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.



CONCRETE BLOCK FILTER FOR AREA DRAIN
(INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

Instructions for Installing:

STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2"x4" board.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the stru ay be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.

Inspection and Maintenance:

Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow around the ditch check?
Does water flow under the ditch check?
Does the silt fence sag excess 7
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the ditch check?

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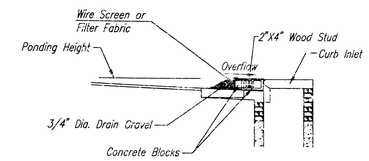
CITY OF WICHITA

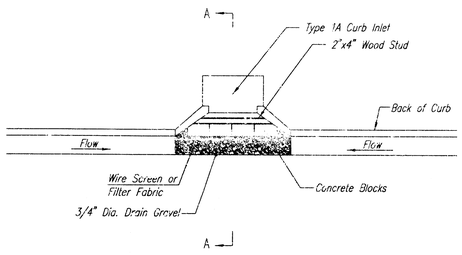
SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
1517PPS	607861
DATE: JAN 2005	SHEET 12 OF 13



SECTION A-A



CURB INLET GRAVEL FILTERS
(INLET PROTECTION-RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

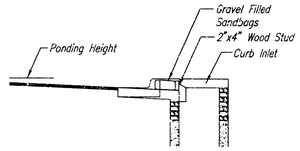
Instructions for Installing:

STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

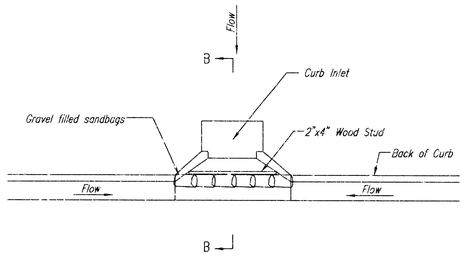
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

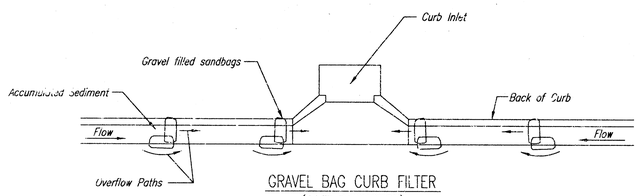


SECTION B-B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

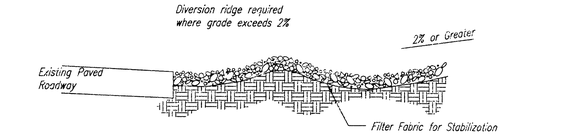
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

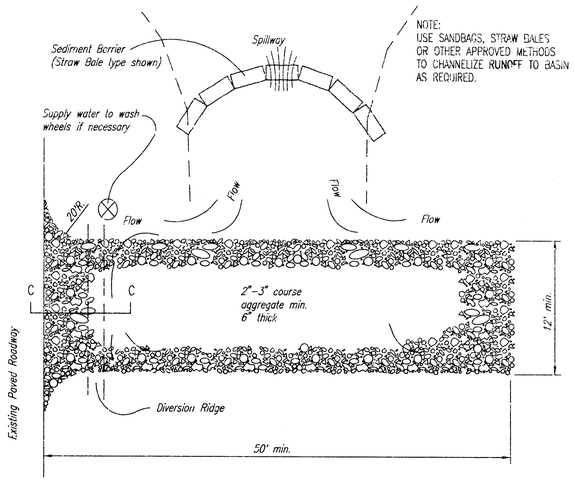
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



SECTION C-C



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

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CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
1517PPS	607861

DATE	SHEET
JAN 2005	SHEET 13 OF 13

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