SANITARY SEWER IMPROVEMENTS

LIFT STATION, GRAVITY SEWER IMPROVEMENTS, and FORCE MAIN IMPROVEMENTS

NIMS LIFT STATION

Project No. 468-76-245-83308

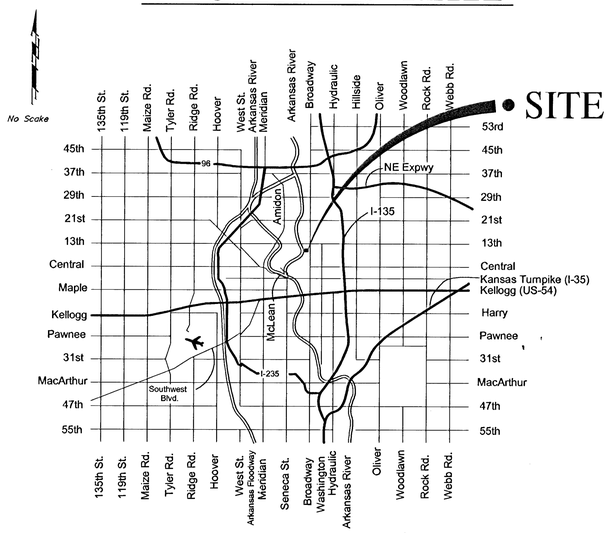
OCA No. 620324

CITY OF WICHITA, KANSAS

Michael E. Lindebak, P.E. City Engineer

JULY 2002

VICINITY MAP



INDEX

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GERALD F. DRADLEY
LICENSED
15076
7/16/02
KANSAS
PROFESSIONAL ENGINEER

As Built 3/03 KK

F:\ENG\COLLEGE HILL\TITLE

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

CONTROL POINTS

C.P. #1 N–31299.803, E–40904.953
¾" Iron Pin in the Center of the Intersection of Bitting Avenue and 10th Street North

C.P. #2 N–31301.905, E–41271.010
¾" Iron Pin in the Center of the Intersection of Larimer Street and 10th Street North

C.P. #3 N–31303.669, E–41637.224
PK Nail in the Center of the Intersection of Jefferson Street and 10th Street North

C.P. #4 N–31154.182, E–41671.911
¾" Iron Pin on the Centerline of 10th Street North, 35' East of the Centerline of Jefferson Street

C.P. #5 N–31155.901, E–42002.906
¾" Iron Pin in the Center of the Intersection of Lewellen Street and 10th Street North

C.P. #6 N–31161.649, E–43098.44
¾" Iron Pin in the Center of the Intersection of Wichita Street and 10th Street North

BENCHMARKS

BM #1 – "□" cut in the Top of Curb in the Southwest Corner of the Intersection of 10th Street North and Bitting Avenue
Elev. = 113.80 (City Datum)

BM #2 – Railroad Spike in the North Face of the Power Pole on the Southeast Corner of the Alley Between Lewellen Street and Jackson Street
Elev. = 117.58 (City Datum)

BM #3 – Top of 1 ½" Iron on the Thimble at the Centerline of 10th Street North and the Centerline of State Street North (Alleyway)
Elev. = 118.73 (City Datum)

LIST OF UTILITY COMPANIES

Contractor will be required to provide a minimum advance notice of forty–eight (48) hours to utility companies prior to excavation or working adjacent to utilities.

TYPE	OWNER	PHONE #
Notifier Service	Kansas One–Call	687–2470
TV	Cox Communications	262–0661
Electric	Westar Energy	383–8650
Gas	Kansas Gas Service	832–3169
Gas	Peoples Natural Gas	942–0096
Telephone	Southwestern Bell Telephone Company	268–2245
Water	City of Wichita Water Department	268–4563
Sewer	City of Wichita Sewer Maintenance	268–4024

GENERAL NOTES

1. The Contractor shall give all property owners and/or tenants of developed property abutting the project limits a minimum of ten (10) days advance notice prior to start of construction.

2. The Contractor will be required to contact Kansas One Call at 687–2470 to request the local utility companies to mark any existing lines with in the project limits a minimum of forty–eight (48) prior to any excavation or working.

3. Existing utilities and their locations, as shown on the plan, represent the best information obtainable for design. The Contractor shall be aware that construction will occur in close proximity to existing utilities, and any conflicts with such utilities shall be reported to the Engineer.

4. All project waste including any trees, milled asphalt, rubble from miscellaneous structures, abandoned pipes, excess excavation & etc. 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.

5. Prior to bidding the project, each bidder shall visit the site and satisfy himself of surface & subsurface conditions. Each bidder shall also fully inform himself as to the extent of the scope of work to be performed. Each bidder shall also be aware that no additional compensation will be awarded for extra work that should have been evaluated prior to bidding.

6. The Contractor shall not start work on the Project until the Project Inspector is assigned and is present on site. Any work done without inspection will be required to be uncovered for inspection.

7. Contractor shall be responsible for implementing erosion control methods during construction to prevent unnecessary silt/sediment discharge through downstream properties and/or storm sewer systems. Contractor shall install and maintain erosion controls as directed by the Engineer These controls may include but not limited to: hay bales; silt fences, temporary mulching or other controls necessary to inhibit sediment runoff during construction. See Erosion Control Details, Sheets 12 to 15.

8. All lawn/turf areas disturbed by construction shall be restored with the same grass/sod as existing. Restoration of disturbed areas shall include, but not limited to, top soil preparation, seeding, mulch, and/or reseeding. All seeding/sodding work shall be in accordance with City Standard specifications and the City Administrative Regulations No. AR78 which governs cleanup and restoration or replacement following construction. All costs for this work shall be INCIDENTAL to "Site Restoration."

9. The Contractor shall reseed all areas disturbed by construction with a mixture of Rye grass (applied at a rate of 200 lbs. per acre) and Fescue grass (applied at a rate of 100 lbs. per acre). Pure Nitrogen fertilizer shall also be applied at a rate of 1.5 lbs per thousand square feet. The seed shall be watered with deep soaking every two (2) weeks during dry periods until a mature stand of grass is obtained. The temporary seeding may be omitted only if other seeding is required in accordance with General Note 8. All costs for this work shall be INCIDENTAL to "Site Restoration."

10. Trees and shrubs in the public right–of–way which are in direct conflict with the proposed construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with the proposed construction shall be saved and protected from damage. Tree Removal shall be INCIDENTAL to "Site Clearing and Preparation".

11. The lump sum price bid for furnishing and installing the pump station and miscellaneous appurtenances shall include all costs for furnishing and installing the pump station module as indicated on the site plan, complete in place and in operation. Such lump sum bid price shall include the cost of constructing and/or installing compacted subgrade, concrete pad, power pole, electrical conduit, electrical wiring, disconnect switch, electrical power supply, natural gas fuel supply, piping, earthwork, reinforced concrete valve vault, fiberglass building, compacted fill, finished grading, and any other incidentals necessary to complete the work.

12. The Contractor shall be responsible for the coordination of gas and electric services being extended and connected to the pump station site as necessary.

13. The Bore Pit Locations Shown on the Plans are tentative. The Contractor shall determine the number and location of the required Bore Pits. These pits shall not conflict with existing driveways, unless permission is granted by the land owner.

14. The Force Main is to be constructed of PVC Pipe C–900, Class 150, that conforms to City of Wichita Specifications and Standards. The directionally drilled portion of the project shall use Certa–Lok C900 or HDPE pipe that also conforms to City of Wichita Specifications and Standards. Pipe is to be installed to Manufacturer's Specifications.

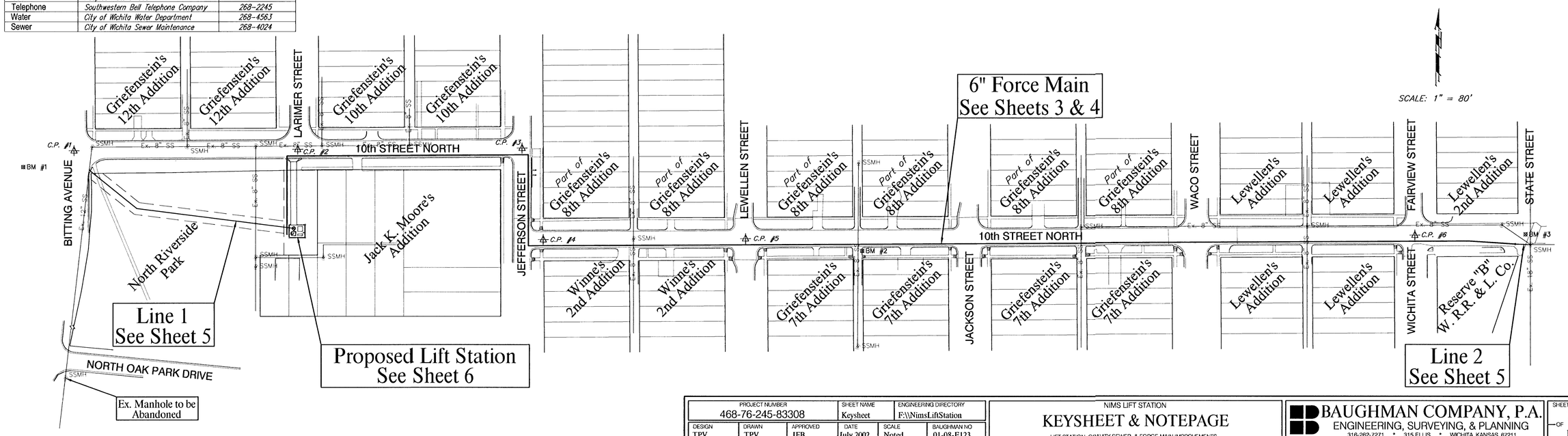
15. Operating/Receiving shafts required for trenchless construction methods shall not be paid for directly, but shall be considered INCIDENTAL to other items in the Project. All excavation, utility relocations, disposal, sheeting, shoring, dewatering, materials, labor, concrete manholes, grout, backfill, etc. as shown on the plans or required for proper installation shall be considered INCIDENTAL.

16. The sanitary sewer manhole at the intersection of Bitting and North Oak Park Drive shall be vacuumed, plugged, and abandoned as per City Specifications. The cost shall be INCIDENTAL to the Lump Sum Bid Item "Vacuum, Clean, & Abandon Existing Manhole".

17. The Contractor shall comply with all applicable safety regulations and City of Wichita Specifications and Standards.

18. The Contractor shall contact the Park Department 72 hours prior to beginning contraction in the park at 268–4179. The City Arborist shall also be contacted prior to pipe installation in the park. Any coordination required by the City Park Department or City Arborist shall NOT be paid for directly, but shall be considered INCIDENTAL to other items in the Project.

19. TRAFFIC CONTROL
The Contractor shall contain the operations to permit traffic through and across construction at existing roadways at all times unless specified on the plans. The Contractor shall erect warning signs, flashing lights, and barricades in compliance with the Manual on Uniform Traffic Control Devices to ensure safety as directed in the general conditions. The length of trenches that will be allowed to remain open overnight and weekends shall be left to the discretion of the Engineer. Traffic Control shall not be paid for directly, but shall be considered INCIDENTAL to other items in the Project.



PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308	Keysheet	F:\\NimsLiftStation

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV	JFB	July 2002	Noted	01-08-E123

NIMS LIFT STATION
KEYSHEET & NOTEPAGE
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

BENCHMARKS

BM #1 – "□" cut in the Top of Curb in the Southwest Corner of the Intersection of 10th Street North and Bitting Avenue
Elev. = 113.80 (City Datum)

BM #2 – Railroad Spike in the North Face of the Power Pole on the Southeast Corner of the Alley Between Lewellen Street and Jackson Street
Elev. = 117.58 (City Datum)

N–31290.91, E–41253.44
F.M. Sta. 1+28.35
Install 1–6" 90° CIMJ Bend (E)

N–31162.56, E–41253.44
F.M. Sta. 0+00.00 Begin 6" Force Main Construction.

N–31144.06, E–41647.54
F.M. Sta. 6+70.91
Install 1–6" 90° CIMJ Bend (E)

N–31292.81 E–41647.25
F.M. Sta. 5+22.16
Install 1–6" 90° CIMJ Bend (S)

N–31146.80, E–42176.62
F.M. Sta. 11+50.00
Match Point

F.M. Sta. 1+28.35 to F.M. Sta. 12+00.00 is to be installed by Directional Drilling, except for F.M. Sta. 5+22.16 to F.M. Sta. 6+70.91 which can be installed by either Open Cut or Directional Drilling.

Jefferson Street from the South line of 10th Street North to approximately 150' South may be closed as necessary for the construction of the 6" Force Main. See General Note 19.

* The Contractor shall expose each gas line crossing to physically verify the depth and location of existing gas lines.

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL

As Built 3/03 KK

PROJECT NUMBER			SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308			FM01	F:\\NimsLiftStation\Sewer
DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV/KWR	JFB	July 2002	Noted	01-08-E123

NIMS LIFT STATION
6" FORCE MAIN PLAN & PROFILE
F.M. Sta. 00+00 to F.M. Sta. 11+50.00
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 * 315 ELLIS * WICHITA, KANSAS 67211

SHEET 3 OF 15

BENCHMARKS
BM #2 – Railroad Spike in the North Face of the Power Pole on the Southeast Corner of the Alley Between Lewellen Street and Jackson Street
Elev. = 117.58 (City Datum)
BM #3 – Top of 1 ½" Iron on the Thimble at the Centerline of 10th Street North and the Centerline of State Street North (Alleyway)
Elev. = 118.73 (City Datum)
F.M. Sta. 11+50.00 to F.M. Sta. 22+86.22 is to be installed by Directional Drilling, except for F.M. Sta. 12+95.65 to F.M. Sta. 14+58.65 which can be installed by either Open Cut or Directional Drilling.
The intersection of Jackson Street and 10th Street North may be closed as necessary for the construction of the 6" Force Main. See General Note 19.
* The Contractor shall expose each gas line crossing to physically verify the depth and location of existing gas lines.
SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
N–31146.54, E–42126.62
F.M. Sta. 11+50.00
Match Point
Install 1136.22 L.F. 6" Pipe
CAUTION! Existing Gas S/L Crossing
Remove and Replace in Kind Ex. Brick Pavement as Necessary for Bore Pit
CAUTION! Existing Water S/L's Crossing
CAUTION! Existing 8" Gas* 6" Gas* Crossing
Deflect Pipe 04°00' (S)
Remove and Replace in Kind Ex. Brick Pavement as Necessary for Bore Pit
CAUTION! Existing 8" Wtr 48" Wtr 2" Wtr Crossing
CAUTION! Existing 20" Wtr in Vicinity
JACKSON STREET
WACO STREET
FAIRVIEW STREET
STATE STREET
WICHITA STREET
10th STREET NORTH
Part of Griefenstein's 8th Addition
Griefenstein's 7th Addition
Lewellen's Addition
Lewellen's 2nd Addition
Reserve "B" W. R.R. & L. Co.
Brick Pavement
Asphalt Pavement
Ex. 8" KGS Gas (BS)
Concrete Entrance
Proposed 12" SS
CAUTION! Existing Water S/L 8" SS 4" Gas* Crossing
CAUTION! Existing Water S/L Crossing
F.M. Sta. 12+95.65 Install 1–2" Air Release Valve Assembly. See Detail, Sheet 8. Top Elev. = 116.55
Remove and Replace in Kind Ex. Brick Pavement as Necessary for Bore Pit
CAUTION! Existing Water S/L Crossing
CAUTION! Existing 4" Gas* 8" SS Water S/L Crossing
CAUTION! Existing 8" Wtr Crossing
CAUTION! Existing Gas S/L's Crossing
CAUTION! Existing 8" SS Crossing
CAUTION! Existing 10" Wtr 20" Wtr 10" SWS Crossing
CAUTION! Existing Water S/L's Crossing
N–31147.11 E–43262.67 F.M. Sta. 22+86.22, End 6" Force Main Construction Construct Standard Type "P" Receiving Manhole (4' Dia.) See Detail, Sheet 8. Rim Elev. = 117.93
As Built 3/03 KK
F.M. Sta. 11+50.00 Match Point
Ex Water S/L (Verify)
Ex 8" San Sewer (Verify)
Ex 4" Gas (Verify)
F.M. Sta. 12+95.65 – P.V.I. Install 1–2" Air Release Valve Assembly. See Detail, Sheet 8.
Ex 8" Water (Verify)
F.M. Sta. 13+77.88 – P.V.I.
Ex 48" Water (Verify)
F.M. Sta. 13+97.88 – P.V.I.
Ex 2" Water (Verify)
F.M. Sta. 14+59.65 – P.V.I.
Ex Gas S/L (Verify)
Existing Ground @ ℄ of Pipe
Ex 8" Gas (Verify)
Ex 6" Gas (Verify)
Ex U/G SWB (Verify)
Ex 10" Water (Verify)
F.M. Sta. 20+97.06 – P.V.I.
Ex 20" Water (Verify)
Ex 10" SWS (Verify)
F.M. Sta. 22+86.22 End 6" Force Main Construction Construct Standard Type "P" Receiving Manhole See Detail, Sheet 7. Top Elev = 117.93
Flow (Prop. 12")
℄ = 112.69
℄ = 112.93
℄ = 112.40
℄ = 112.93 From Pipe
125
120
115
110
105
100
95
11+50
12+00
12+95.65
13+77.88
13+97.88
14+59.65
15+00
16+00
17+00
18+00
19+00
20+00
20+97.06
22+00
22+86.22

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308	FM02	F:\\NimsLiftStation\Sewer

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV/KWR	JFB	July 2002	Noted	01-08-E123

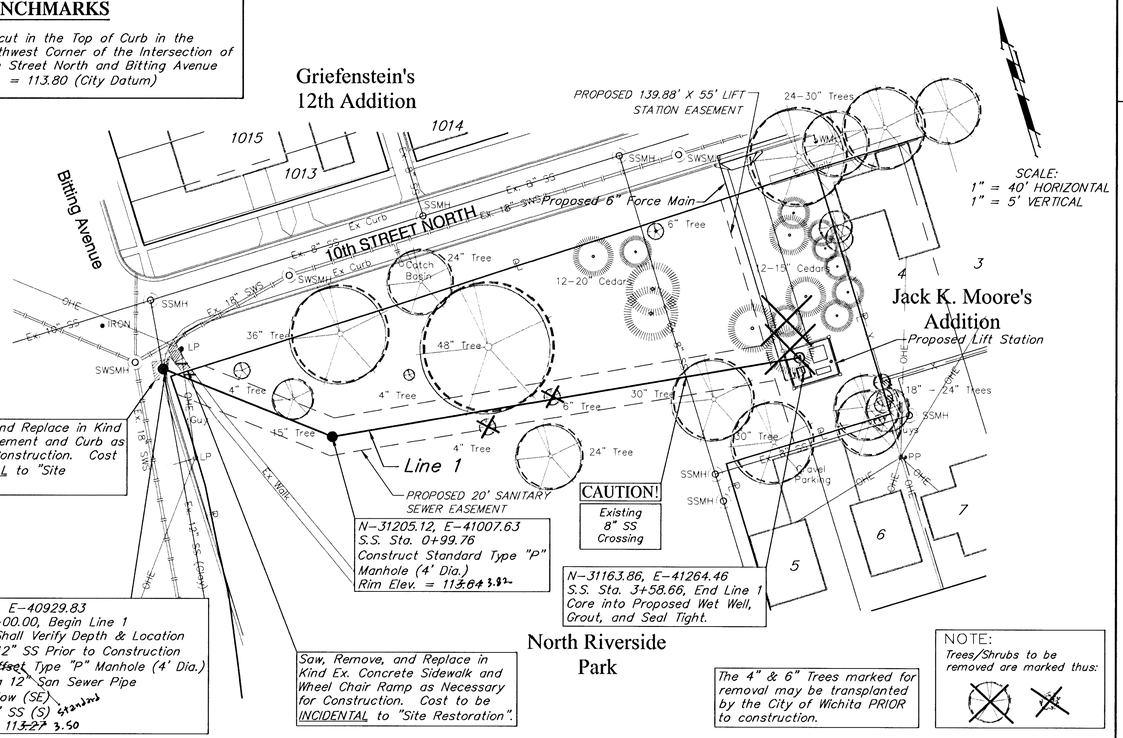
NIMS LIFT STATION
6" FORCE MAIN PLAN & PROFILE
F.M. Sta. 11+50.00 to F.M. Sta. 22+86.22
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

SHEET 4 OF 15

BENCHMARKS

BM #1 – "□" cut in the Top of Curb in the Southwest Corner of the Intersection of 10th Street North and Bitting Avenue
Elev. = 113.80 (City Datum)



SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL

Saw, Remove, and Replace in Kind Ex. Asphalt Pavement and Curb as Necessary for Construction. Cost to be INCIDENTAL to "Site Restoration".

N–31205.12, E–41007.63
S.S. Sta. 0+99.76
Construct Standard Type "P" Manhole (4' Dia.)
Rim Elev. = 113.64 3.82

CAUTION!
Existing 8" SS Crossing

N–31163.86, E–41264.46
S.S. Sta. 3+58.66, End Line 1
Core into Proposed Wet Well, Grout, and Seal Tight.

N–31267.56, E–40929.83
S.S. Sta. 0+00.00, Begin Line 1
Contractor Shall Verify Depth & Location of Existing 12" SS Prior to Construction
Construct ~~Offset~~ Type "P" Manhole (4' Dia.) Over Existing 12" San Sewer Pipe
Divert Ex. Flow (SE) ~~Plug~~ standard
Plug Ex. 12" SS (S)
Rim Elev. = ~~113.27~~ 3.50

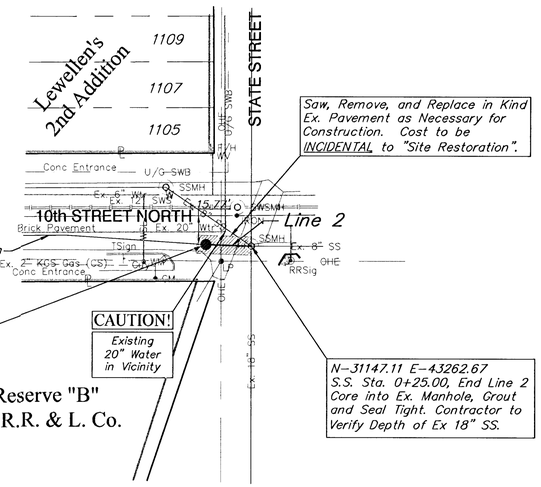
Saw, Remove, and Replace in Kind Ex. Concrete Sidewalk and Wheel Chair Ramp as Necessary for Construction. Cost to be INCIDENTAL to "Site Restoration".

The 4" & 6" Trees marked for removal may be transplanted by the City of Wichita PRIOR to construction.

NOTE:
Trees/Shrubs to be removed are marked thus:

BENCHMARKS

BM #3 – Top of 1 ½" Iron on the Thimble at the Centerline of 10th Street North and the Centerline of State Street North (Alleyway)
Elev. = 118.73 (City Datum)



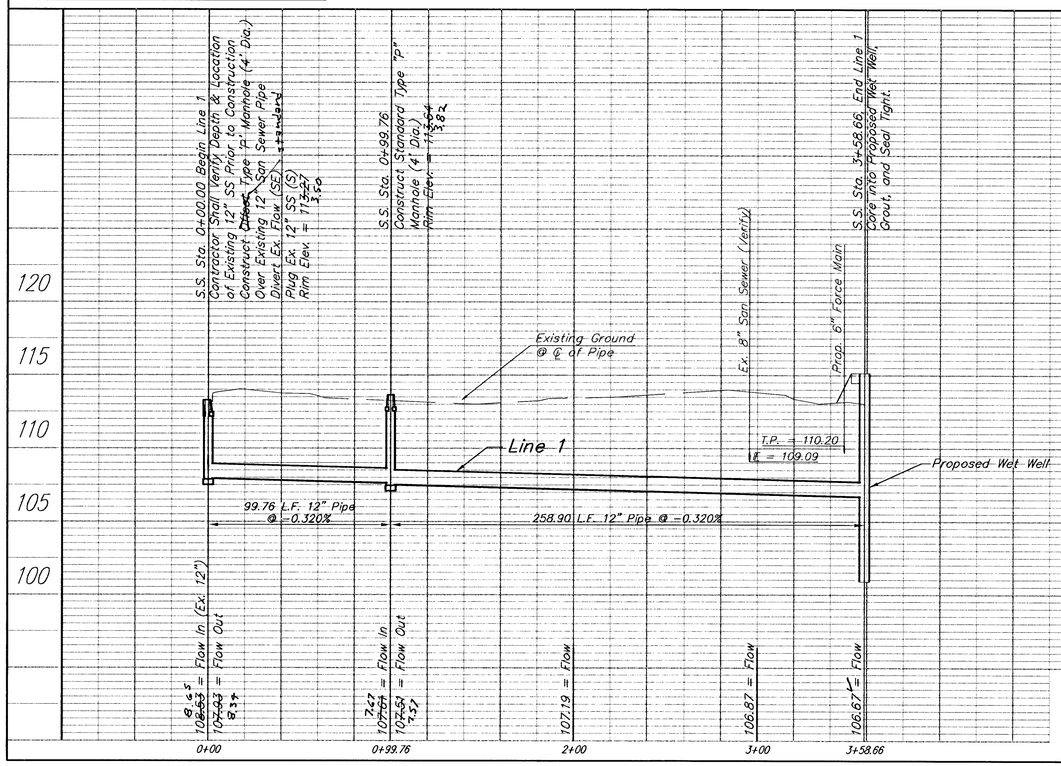
SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL

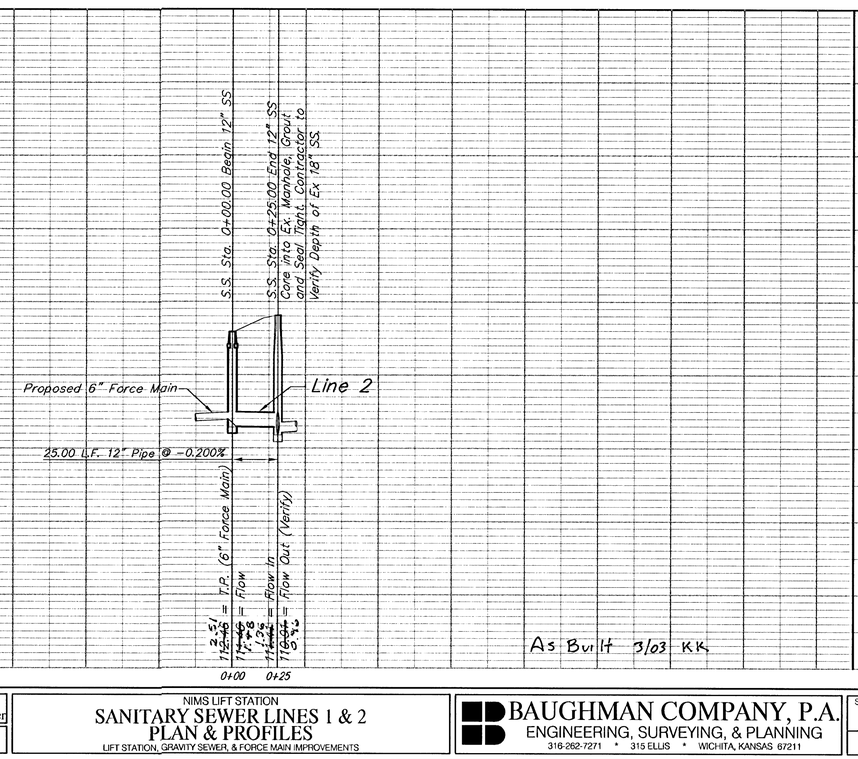
Saw, Remove, and Replace in Kind Ex. Pavement as Necessary for Construction. Cost to be INCIDENTAL to "Site Restoration".

N–31147.11 E–43262.67
S.S. Sta. 0+00.00, Begin Line 2 = F.M. Sta. 22+86.22

CAUTION!
Existing 20" Water in Vicinity

N–31147.11 E–43262.67
S.S. Sta. 0+25.00, End Line 2
Core into Ex. Manhole, Grout and Seal Tight. Contractor to Verify Depth of Ex 18" SS.





As Built 3/03 KK

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
472-76-245-83308	GM01	F:\\NimsLiftStation\Sewer

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV/KWR	JFB	July 2002	Noted	01-08-E123

NIMS LIFT STATION
SANITARY SEWER LINES 1 & 2
PLAN & PROFILES
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
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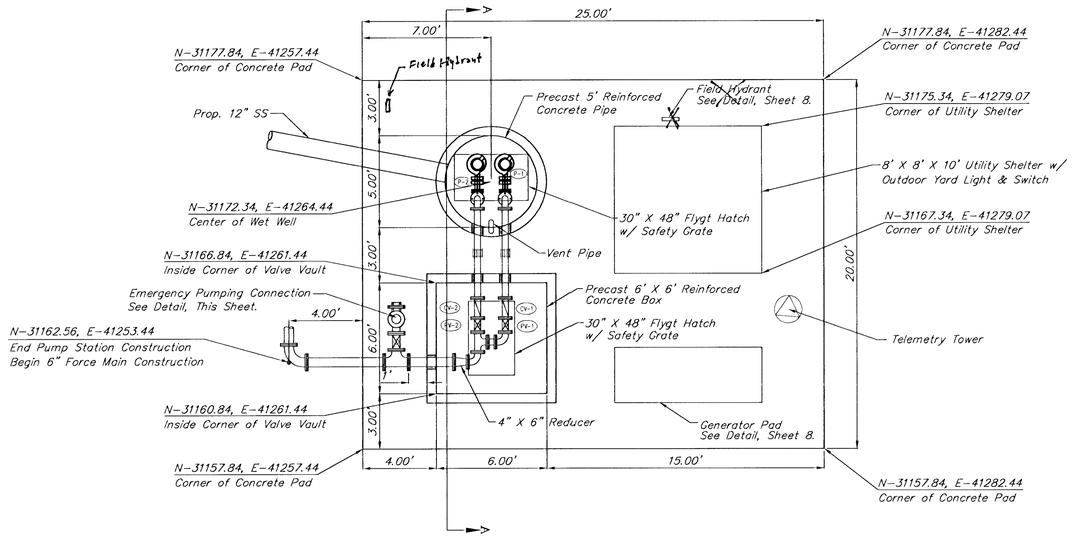
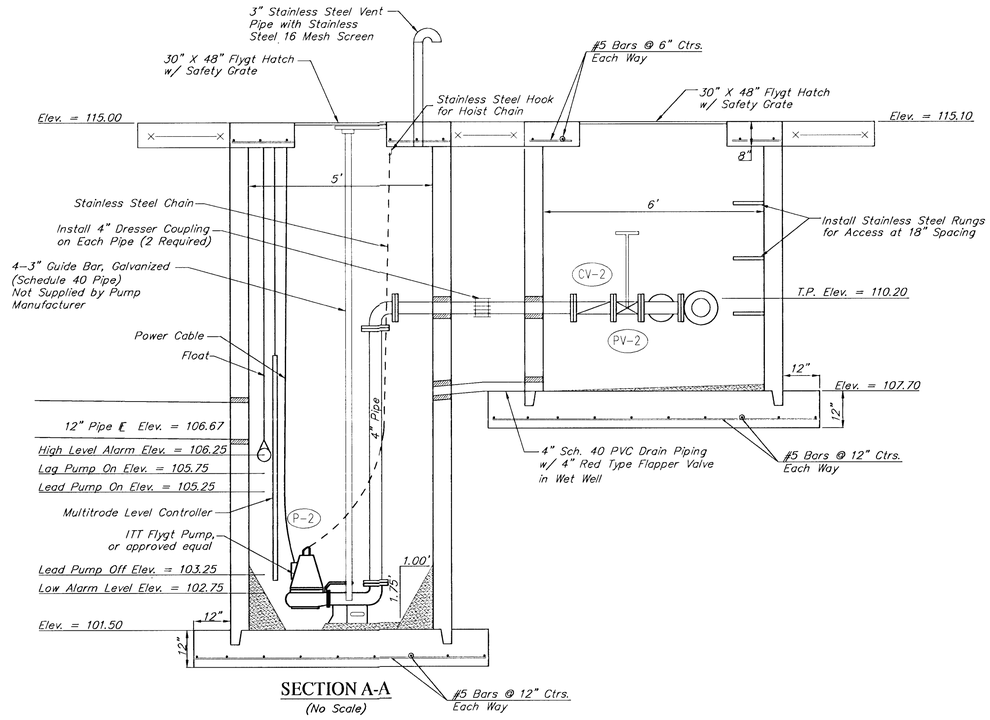
SHEET 5 OF 15



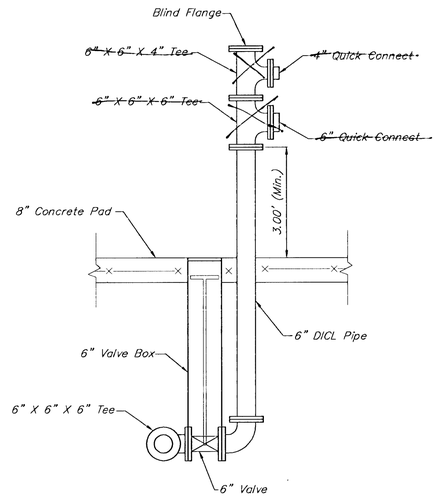
PLAN VIEW



SECTION A-A
(No Scale)

LIFT STATION GENERAL NOTES

1. The Price Bid for Furnishing and Installing the Lift Station, Including the Wet Well, Valve Vault, and Other Miscellaneous Appurtenances, Shall Include All Costs for Furnishing and Installing the Lift Station as Indicated in the Plans Complete in Place and in Operation. This Price Shall Include the Cost of Constructing and/or Installing Compacted Subgrade, Concrete Pavement, Electrical Conduit, Electrical Wiring, Disconnect Switch, Pump Controls, Electrical Power Supply, Finished Grading, Landscaping, Fencing, and any Other Incidentals Necessary to Complete the Work and Place the Lift Station into Satisfactory Operation. The Price Bid Shall Include All Sanitary Sewer Pipe and Force Main Extended Outside the Slab as Shown in the Site Plan and Details.
2. All Force Main Piping Shall be Ductile Iron (Flanged) to 5' Outside the Structures, Unless Otherwise Noted. All Interior Piping Shall be Cement Lined and Epoxy Coated Ductile Iron Pipe.
3. Pipe Penetrations Thru the Wet Well, Valve Vault, and Concrete Pad Shall be Grouted Watertight With Non-Shrink Grout and Water Stop Gaskets as Required.
4. The Contractor shall perform an Exfiltration Test on the complete Wet Well. The Wet Well shall be tested individually by securely plugging all inlet and outlet pipes. The Wet Well shall be filled to its full depth and then observed for at least six (6) hours. Exfiltration loss from the 6-foot diameter Wet Well shall not exceed the rate of 1.70 Gallons per foot of Wet Well depth per day. If exfiltration exceeds the maximum limits, the Contractor shall repair the leaks and defects, and then retest.
5. The Contractor shall support all piping inside the Wet Well and Valve Vault as required.
6. All hardware inside the Wet Well and Valve Vault, including but not limited to the Guide Bar, Hoist Chain, Chain Catch, etc. shall be stainless steel. Nylon Ropes will not be Allowed.
7. Wet Well and Valve Vault design shall be subject to the same design requirements as Precast Manholes.
8. The interior of the Wet Well shall be lined with Amer-Plate T-Lock Liner Plate, B.F. Goodrich Lok-Rib Koroseal, or an approved equal Plastic Liner.
9. Backfill around the Wet Well and under the Valve Vault and Pad shall be a low volume change material compacted to 95% ASTM D-1557.
10. The Contractor shall coordinate with KGE Electric Company and Kansas Gas Service to extend electric and gas services to the Pump Station Site. The Contractor shall verify the electrical and gas service requirements. ~~that will be provided by KGE and Peoples Gas~~. The Contractor shall allow 2 weeks for these services to be completed. All costs incurred to extend these services to the site shall be INCIDENTAL the other items in the Project.
11. No Electrical Connections will be Allowed in the Wet Well.
12. Pump Manufacturer Shall Submit Pump Control & Electrical Schematics to be Approved by the ~~Engineer and~~ Water & Sewer Department Representative Prior to Bidding.
13. Contact Jim Lane or Tim Hopwood with the City of Wichita Sewer Treatment Plant at 529-9984 PRIOR to Lift Station Start-up.



EMERGENCY PUMPING CONNECTION

Contractor to contact Jim Lane with the Wichita Sewer Treatment Plant at 529-9984 to coordinate type of Quick Connect to be used.

LIFT STATION SCHEDULES

PLUG VALVE SCHEDULE

MARK	LOCATION	STATUS	SIZE	FITTINGS	OPERATOR
PV-1	VALVE VAULT	NEW	4"	FLANGE	GEARED OPERATOR W/ EXTENSION & 2" NUT
PV-2	VALVE VAULT	NEW	4"	FLANGE	GEARED OPERATOR W/ EXTENSION & 2" NUT

CHECK VALVE SCHEDULE

MARK	LOCATION	STATUS	SIZE	FITTINGS	OPERATOR
CV-1	VALVE VAULT	NEW	4"	FLANGE	LEVER & SPRING
CV-2	VALVE VAULT	NEW	4"	FLANGE	LEVER & SPRING

PUMP SCHEDULE

MARK	TYPE	GPM	HEAD (FT)	EFF. %	HP	RPM	ELECT.
P-1	SUBMERSIBLE	175	16.5	60% MIN.	2.4	1700	230/10/1
P-2	SUBMERSIBLE	175	16.5	60% MIN.	2.4	1700	230/10/1

As Built 03 KK

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308	Station	F:\\NimsLiftStation\Detail

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV	JFB	July 2002	None	01-08-E123

NIMS LIFT STATION

LIFT STATION DETAILS

LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
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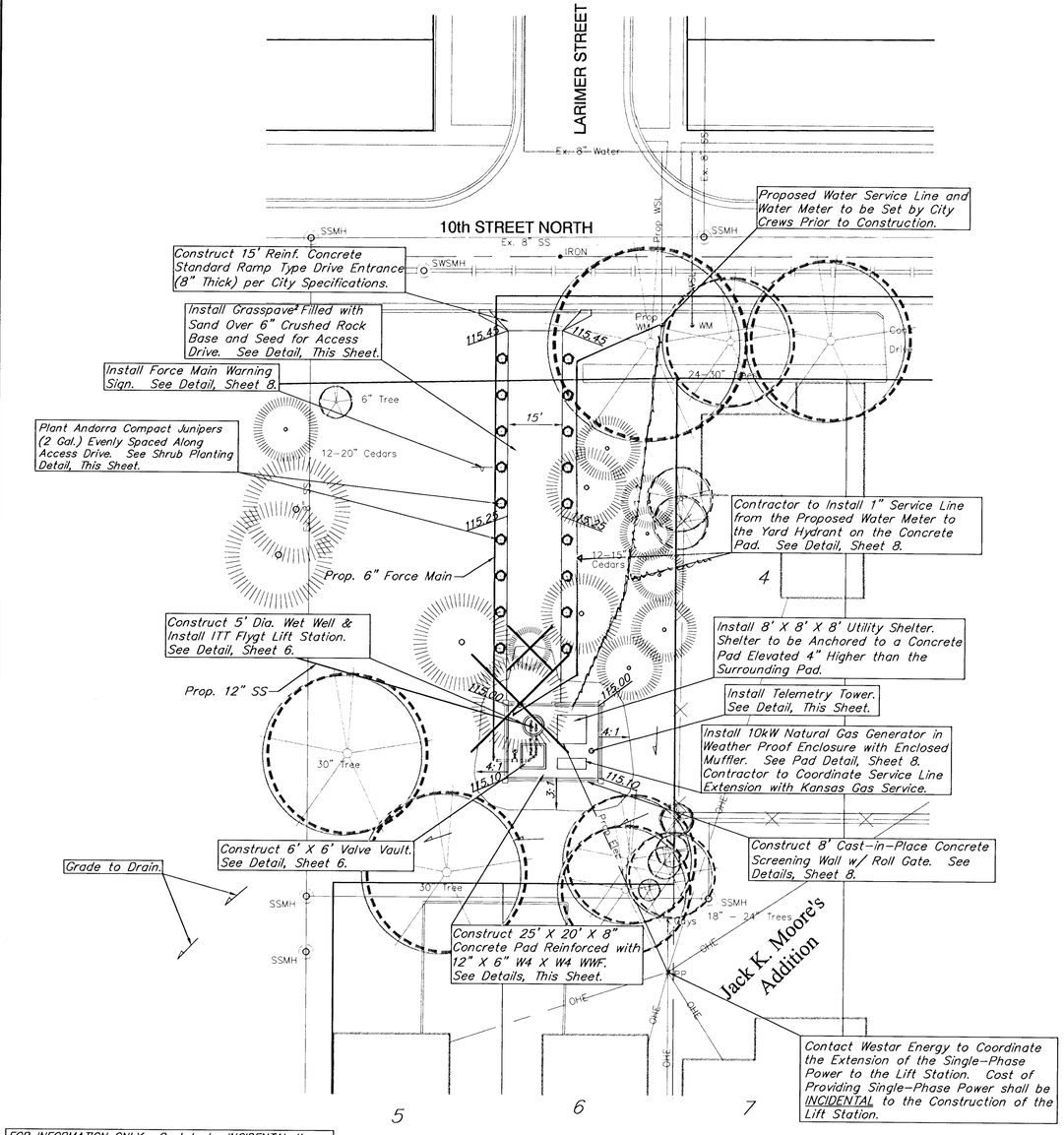
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

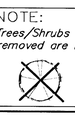
SHEET 6 OF 15



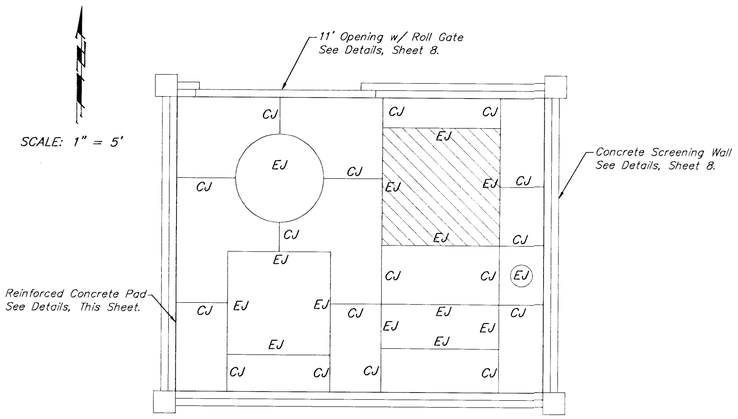
LIFT STATION SITE PLAN

FOR INFORMATION ONLY. Cost to be INCIDENTAL the Lump Sum Bid Item "Lift Station".	
Cast-in-Place Decorative Concrete Wall (Embossed & Colored)	86 L.F.
Roll-Type Gate w/ Exterior Padlock	1
Site Grading	Lump Sum
Concrete Drive Entrance (8" Thick)	132 S.F.
GrassPave² (Includes Subgrade and Seeding)	1538 S.F.
Shrubs	18
1" Water Service Line	Approx. 110 L.F.

NOTE:
Trees/Shrubs to be removed are marked thus:



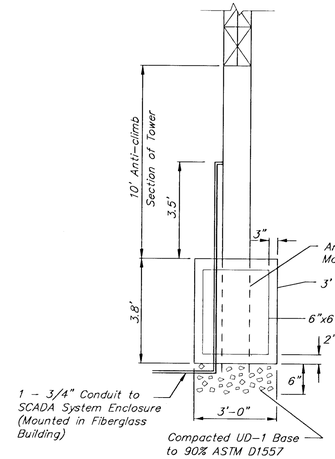
Trees not Marked for Removal Shall be Protected from Damage During Construction. Trees may be Trimmed Using Approved Methods as Necessary for Construction and to Allow Vacuum Truck Access.



LIFT STATION JOINT PLAN

CJ = Construction Joint
EJ = Expansion Joint

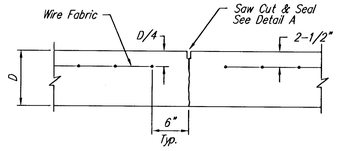
Denotes Concrete Pavement to have 4" Thickened Building Pad (12" Thick Total).



SCADA SYSTEM DETAIL

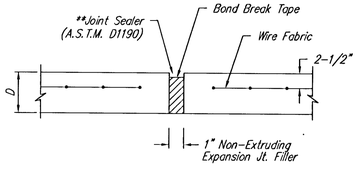
NOTES:

1. MAXIMUM TOWER HEIGHT IS 30 FEET.
2. 6' COPPER GROUND ROD SHALL BE PROVIDED FOR THE TOWER.
3. ANCHOR BOLT SIZES AND LENGTHS SHALL BE PER THE TOWER MANUFACTURERS RECOMMENDATIONS.
4. CONTACT MIKE HUGHES WITH THE CITY OF WICHITA WATER & SEWER DEPARTMENT AT 269-4764 PRIOR TO SCADA CONNECTION



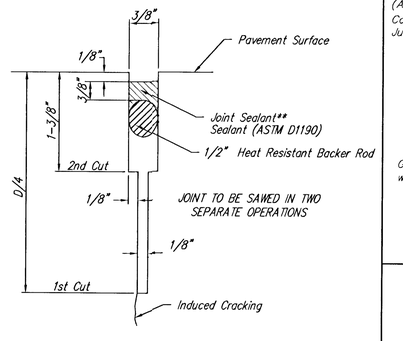
CONTRACTION JOINT DETAIL

REINFORCED PAVEMENT
(C.J.)



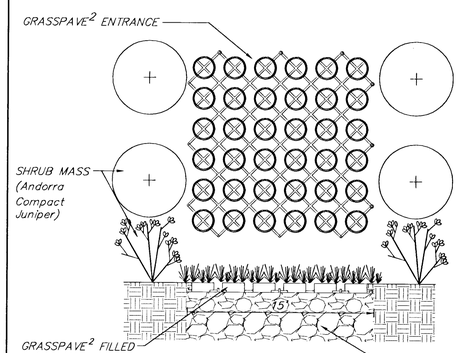
EXPANSION JOINT DETAIL

(E.J.)



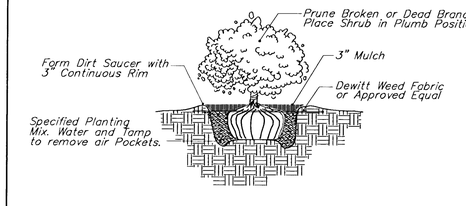
DETAIL A

** Contractor can use Polymeric Joint Sealant (ASTM C-920-95)



GRASSPAVE² DETAIL

Install Grasspave², or approved equal, per Manufactures specifications. Contact Invisible Structures, at 1-800-233-1510.



TYPICAL SHRUB PLANTING DETAIL

5 Gallon and Smaller — No Scale

As Built 3/03 KK

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308	MISC	F:\\NimsLiftStation\Detail

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV	JFB	July 2002	None	01-08-E123

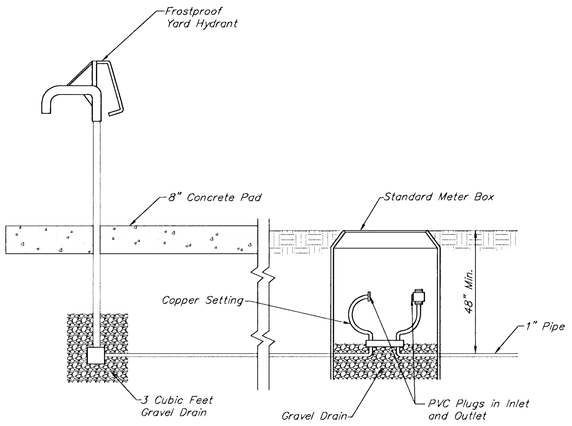
NIMS LIFT STATION

MISCELLANEOUS DETAILS

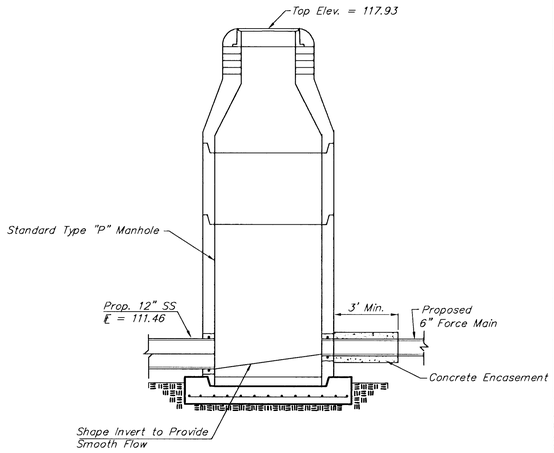
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

SHEET 7 OF 15



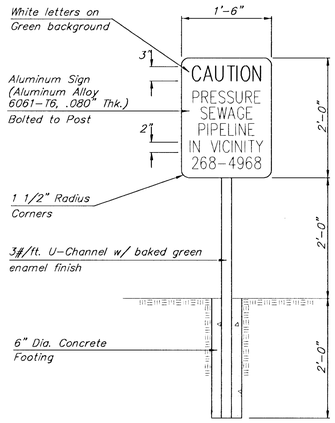
YARD HYDRANT DETAIL



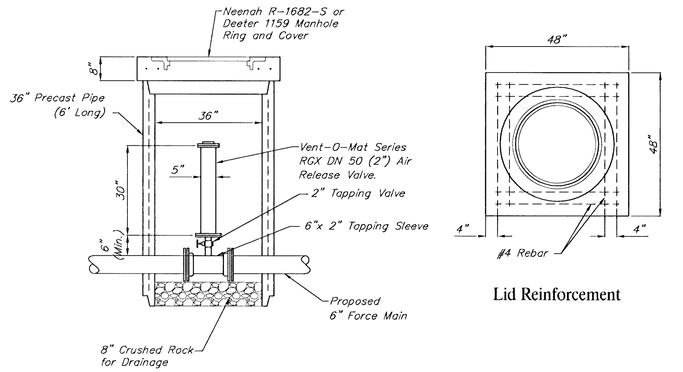
FORCE MAIN RECEIVING MANHOLE DETAIL

Sta. 22+86.22

Note: Install Metal Warning Sign at Locations as Shown on the Plans. Exact Locations of Warning Signs shall be Approved by the Engineer. Cost to be INCIDENTAL to the Lump Sum Bid Item "Lift Station".



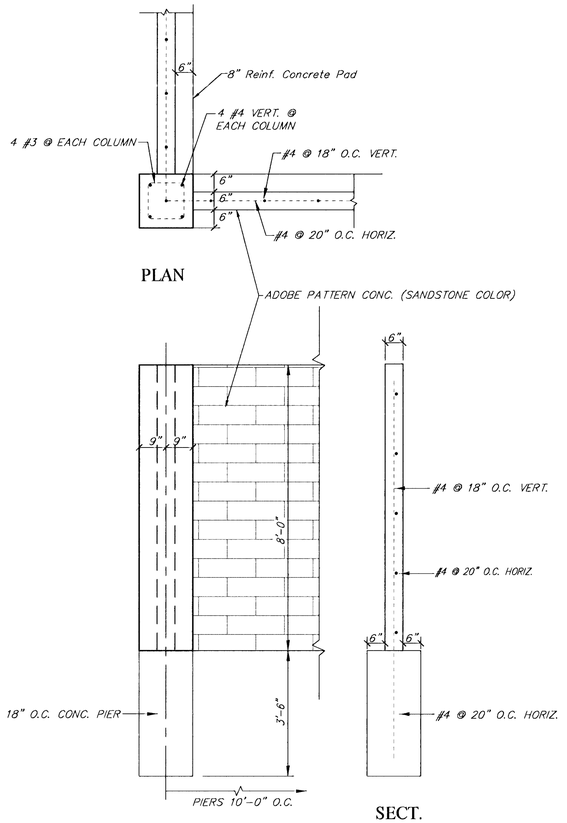
FORCE MAIN WARNING SIGN DETAIL



Lid Reinforcement

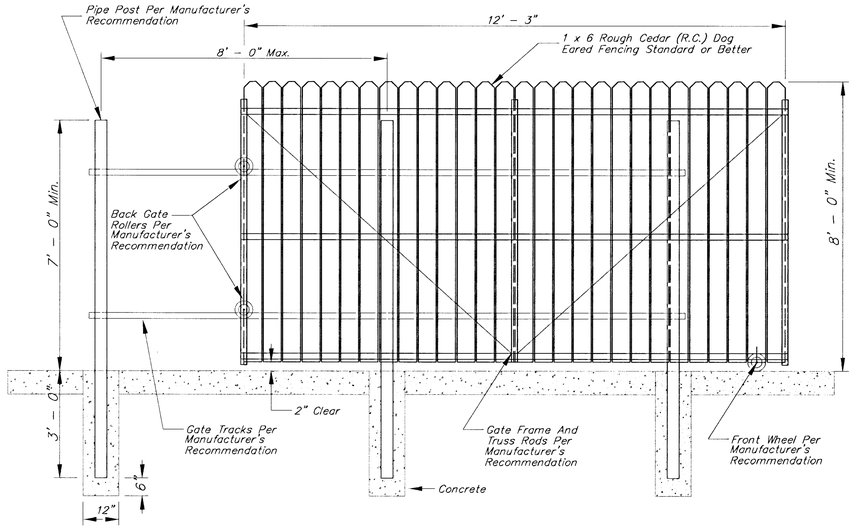
AIR RELEASE VALVE and VAULT DETAIL

Sta. 12+95.65



SCREENING WALL DETAIL

CONTRACTOR SHALL SUBMIT WALL DESIGN TO THE ENGINEER FOR APPROVAL

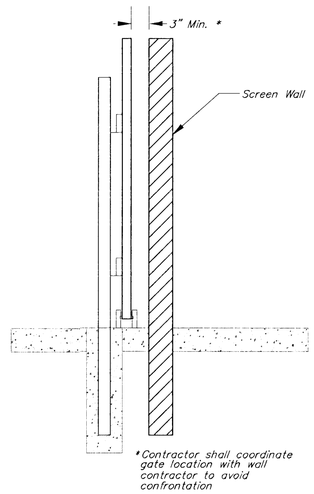


NOTE: Manufacturer shall provide a Locking Device suitable for a Padlock on the Outside of the Gate.

8-0" ROLL GATE DETAIL

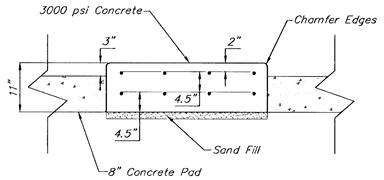
NO SCALE

CONTRACTOR SHALL SUBMIT GATE DESIGN TO THE ENGINEER FOR APPROVAL

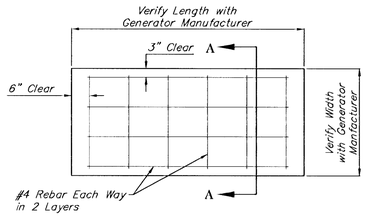


Cross Section of Gate

** Contractor shall coordinate gate location with wall contractor to avoid confrontation*



Section A-A



GENERATOR PAD DETAIL

Contractor to Verify Design of Generator Pad with Generator Supplier or Manufacturer Prior to Pouring

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308	Misc2	F:\\NimsLiftStation\Details

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
TPV	TPV	JFB	July 2002	None	01-08-E123

NIMS LIFT STATION

MISCELLANEOUS DETAILS

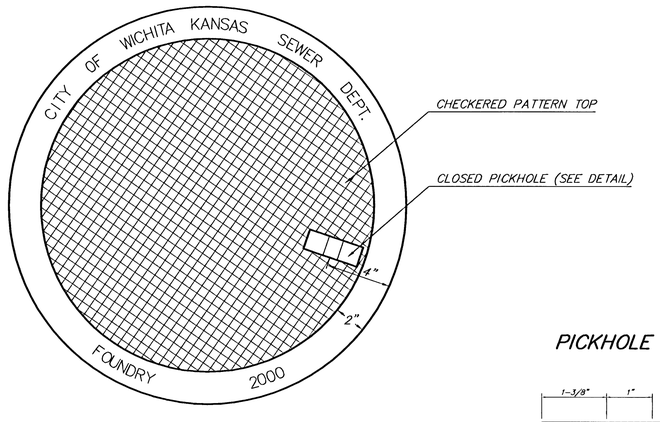
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 * 315 ELLIS * WICHITA, KANSAS 67211

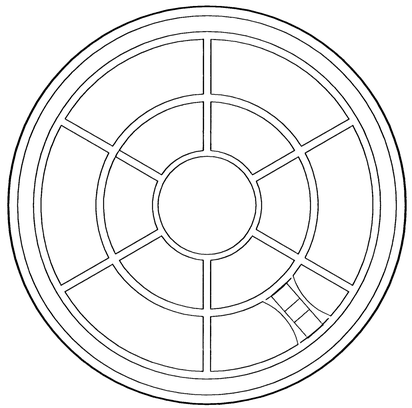
MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

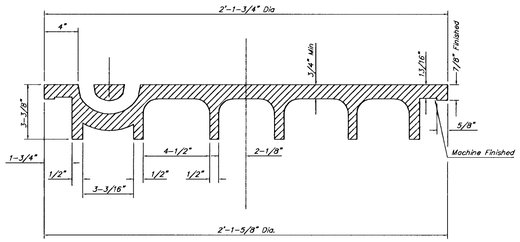
MANHOLE COVER
Weight = 180 Lbs.



TOP VIEW

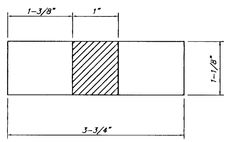


BOTTOM VIEW

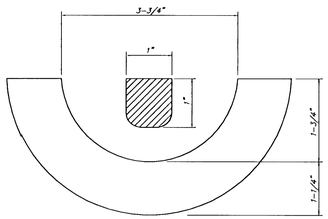


SECTION VIEW

PICKHOLE DETAIL

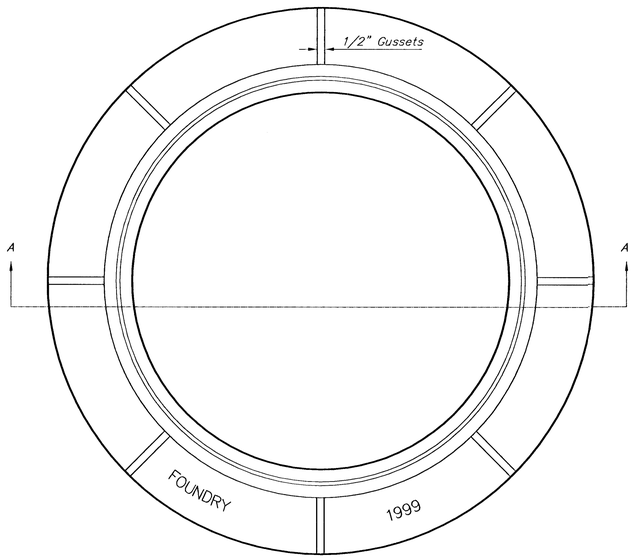


TOP VIEW



SECTION VIEW

MANHOLE FRAME
Weight = 145 Lbs.



TOP VIEW

GENERAL NOTES

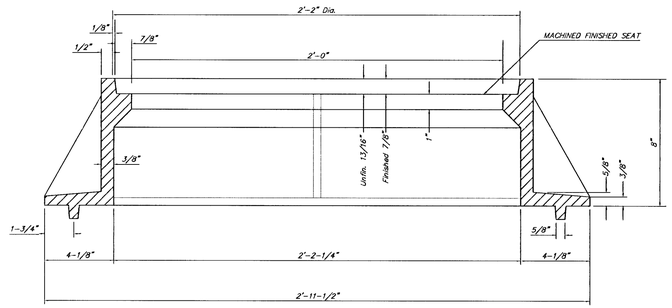
MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.

MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH AS THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.



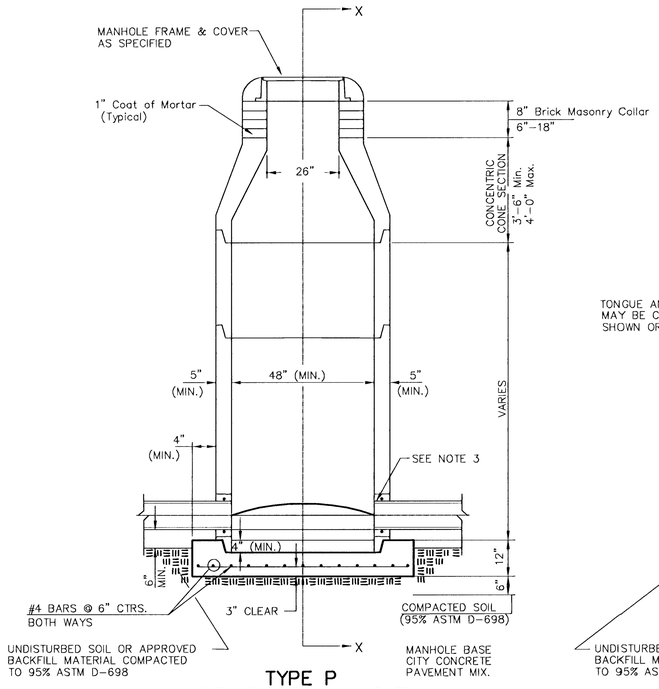
SECTION A-A

PROJECT NUMBER			SHEET NAME	ENGINEERING DIRECTORY	
468-76-245-83308			MHRING	F:\\NimsLiftStation\Detail	
DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
C.O.W	STAFF		June 2002	None	01-08-E123

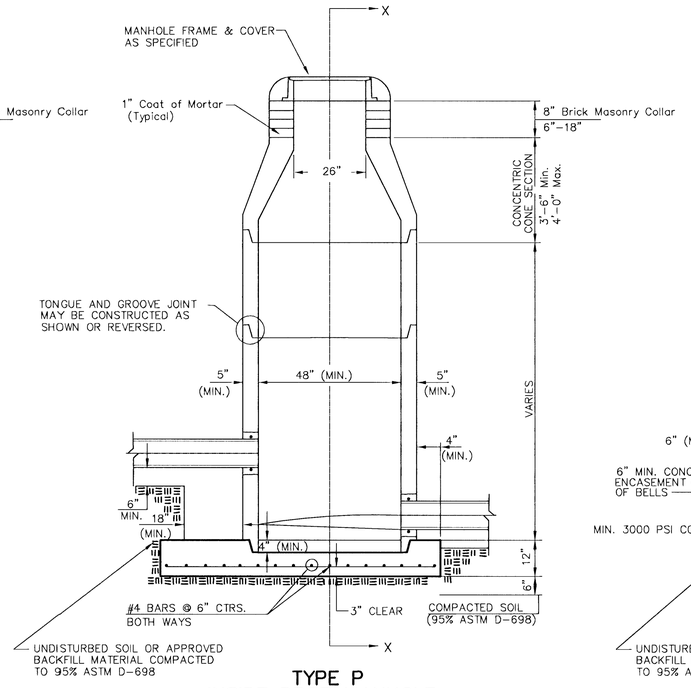
NIMS LIFT STATION
STANDARD DETAILS for
MANHOLE RING AND COVER
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 * 315 ELLIS * WICHITA, KANSAS 67211

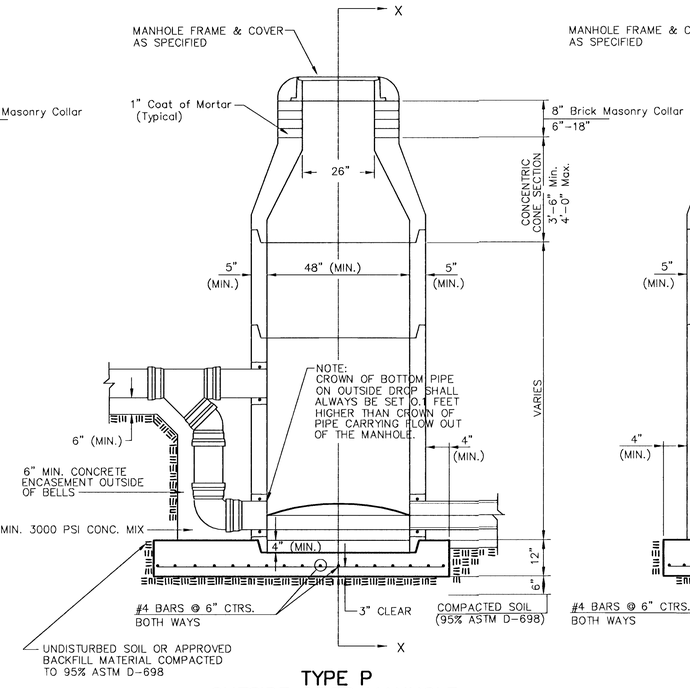
SEWER APPURTENANCES DETAILS



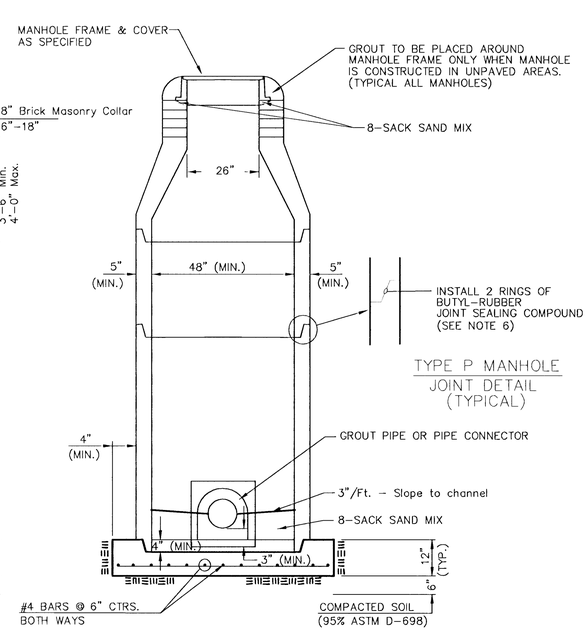
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE

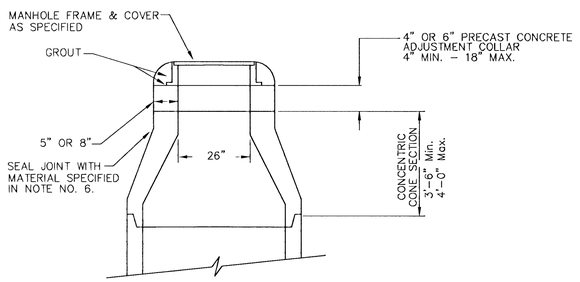


SECTION X
(TYPICAL)

GENERAL NOTES

PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON–SHRINK GROUT SHALL BE NON–METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON–SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH TWO COATS OF TNEMEC SERIES 66 HI–BUILD OR APPROVED EQUAL.
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON–SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. 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 PAVEMENT 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. 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.
11. 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 AT LEAST 3" 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.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NON–SHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. 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 EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. 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.
14. 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.
15. 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 DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE–CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.



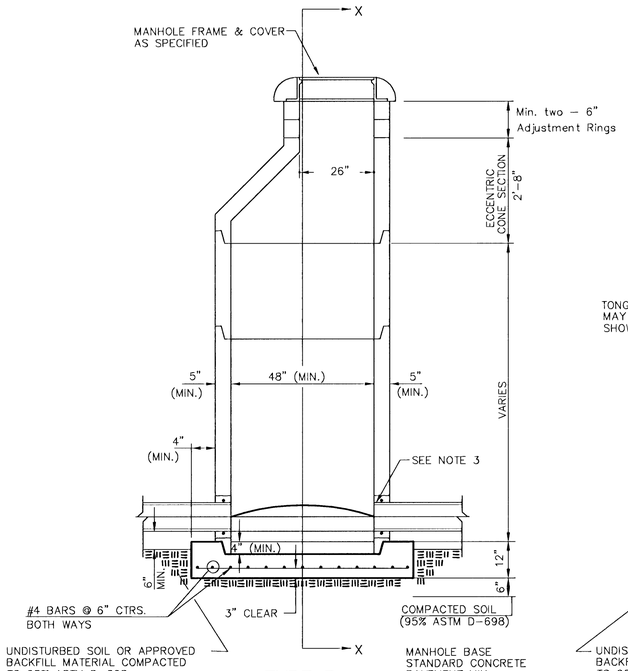
ALTERNATE CONSTRUCTION
IN UNPAVED AREAS

PROJECT NUMBER			SHEET NAME	ENGINEERING DIRECTORY	
468-76-245-83308			PMH	F:\\NimsLiftStation\Detail	
DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
			July 2002	None	01-08-E123

NIMS LIFT STATION
TYPE "P"
MANHOLE DETAIL
LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 * 315 ELLIS * WICHITA, KANSAS 67211

SEWER APPURTENANCES DETAILS



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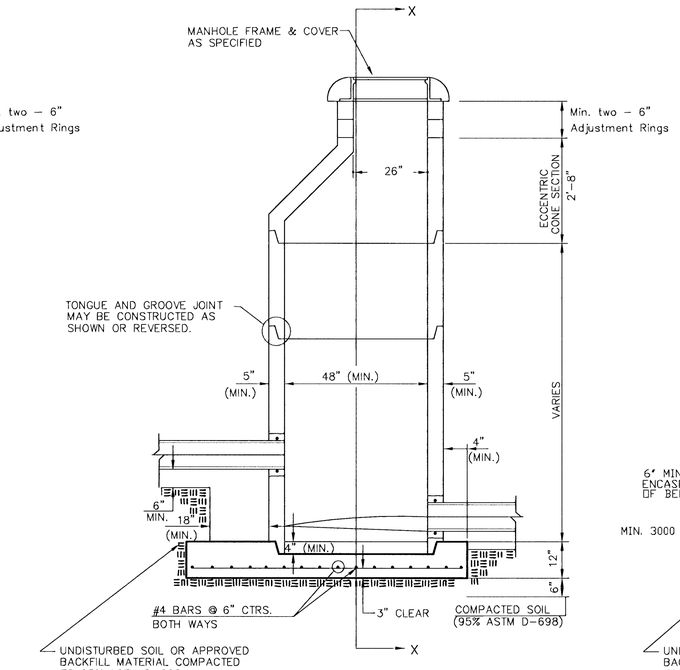
STANDARD MANHOLE



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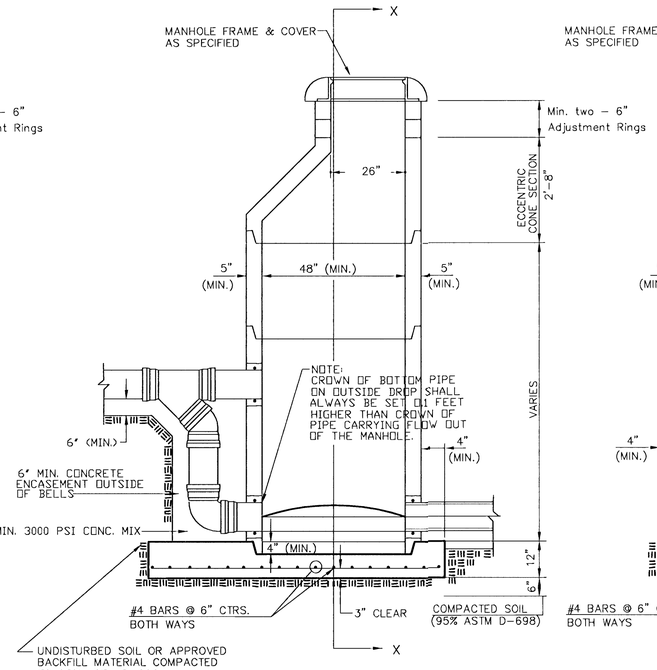
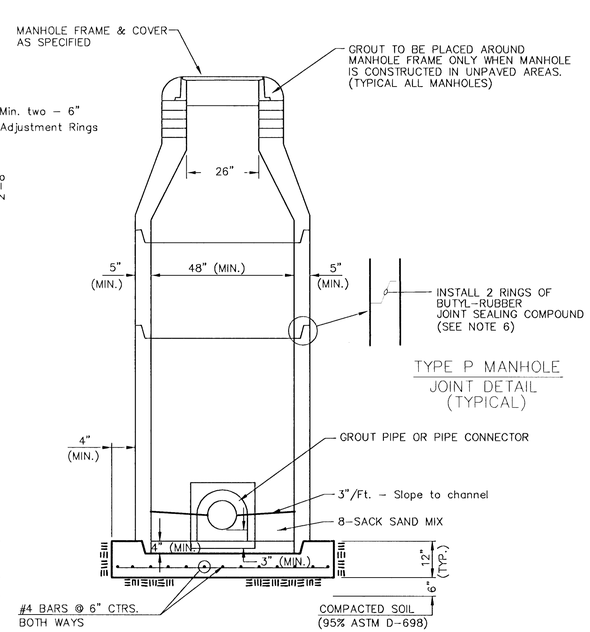
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



SECTION X
(TYPICAL)

GENERAL NOTES

PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON–SHRINK GROUT SHALL BE NON–METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON–SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH TWO COATS OF TNEMEC SERIES 66 HI–BUILD OR APPROVED EQUAL.
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON–SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. 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 STANDARD PAVING SPECIFICATIONS USING STANDARD CONCRETE PAVEMENT 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. 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.
11. 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 AT LEAST 3" 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.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWNG. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. 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 EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWNG. 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.
14. 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.
15. 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 DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

PROJECT NUMBER	SHEET NAME	ENGINEERING DIRECTORY
468-76-245-83308	Offset MH	F:\NimsLiftStation\Detail

DESIGN	DRAWN	APPROVED	DATE	SCALE	BAUGHMAN NO
ENGINEER	STAFF	JFB	July 2002	None	01-08-E123

NIMS LIFT STATION

OFFSET MANHOLE DETAILS

LIFT STATION, GRAVITY SEWER, & FORCE MAIN IMPROVEMENTS

BAUGHMAN COMPANY, P.A.
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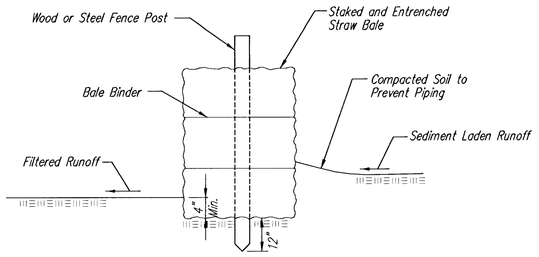


STRAW BALE BARRIERS

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.

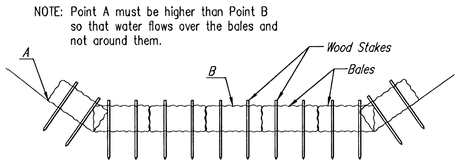
List of common placement/installation mistakes to avoid:

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?



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 remainder 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".

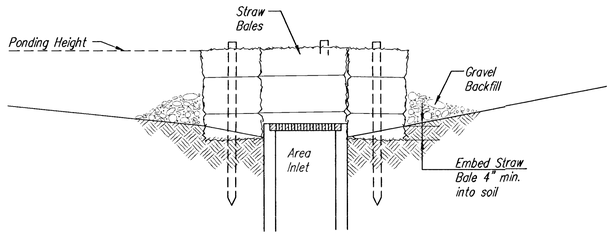
List of common placement/installation mistakes to avoid:

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.

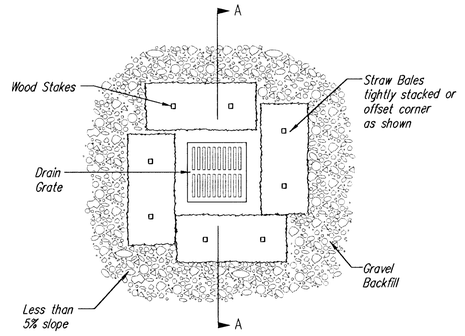
Inspection and Maintenance:

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.

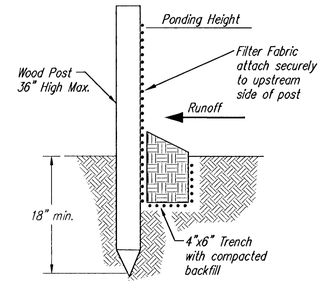
List of common placement installation mistakes to avoid:

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 andlor 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 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:

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, liails, 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?

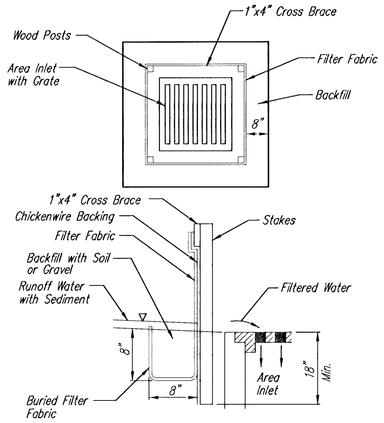
CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

PROJECT NUMBER	OCA NO.
468-83308	620324

DATE	SHEET 12 OF 15
July 2002	



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.

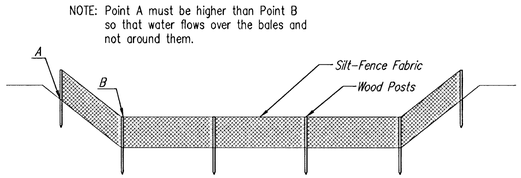
List of common placement/installation mistakes to avoid:

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)

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

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:

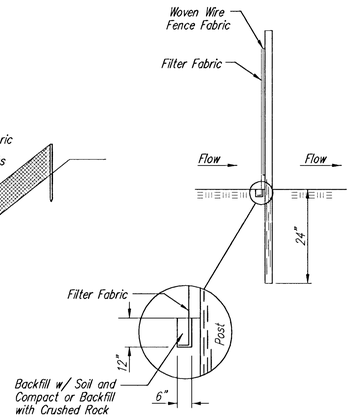
Ditch Check Ditch grade (%)	Spacing Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

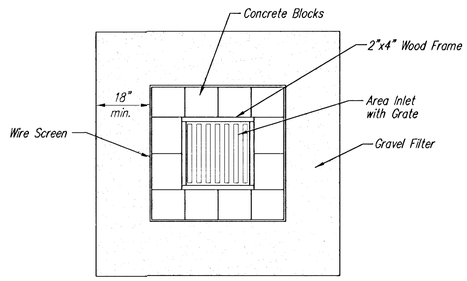
Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide.
Extend the trench in a straight line along the entire length of the proposed ditch check.
Place the soil on the upstream side of the trench for later use.
Roll out a continuous length of silt fence fabric on the 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.

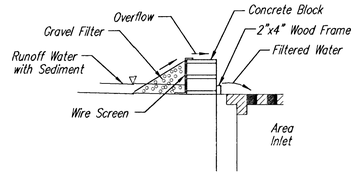
List of common placement/installation mistakes to avoid:

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.



ANCHOR TRENCH DETAIL





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 structures may 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 excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the ditch check?

CITY OF WICHITA

SOIL EROSION BMP DETAILS

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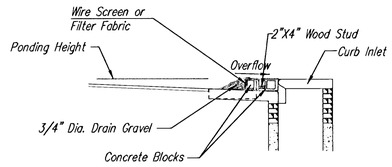
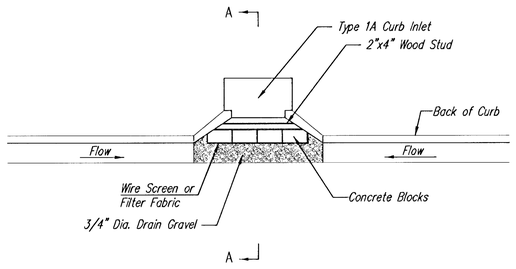


SECTION A-A



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.

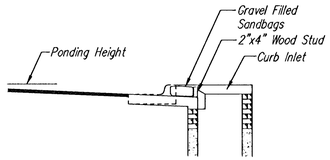
Instructions for Installing:

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.

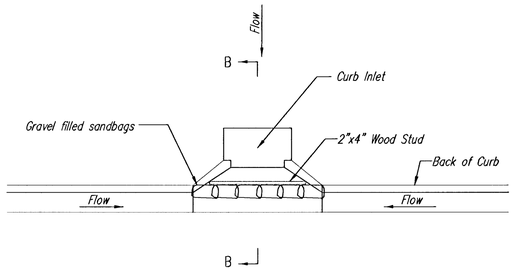
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

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.

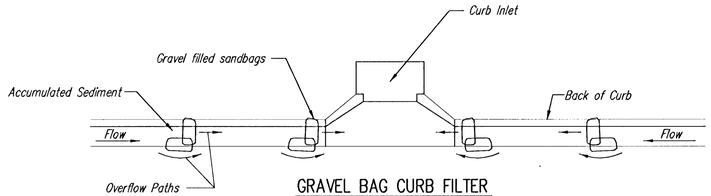


SECTION B-B



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.

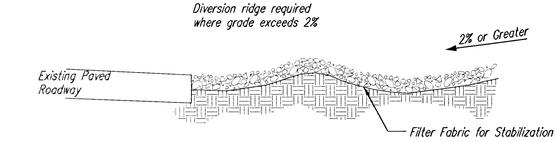
Spacing:

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

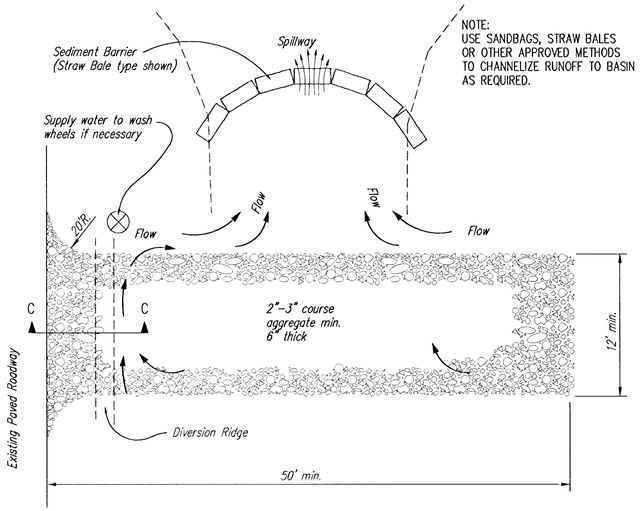
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

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 STABLIZED 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.

CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

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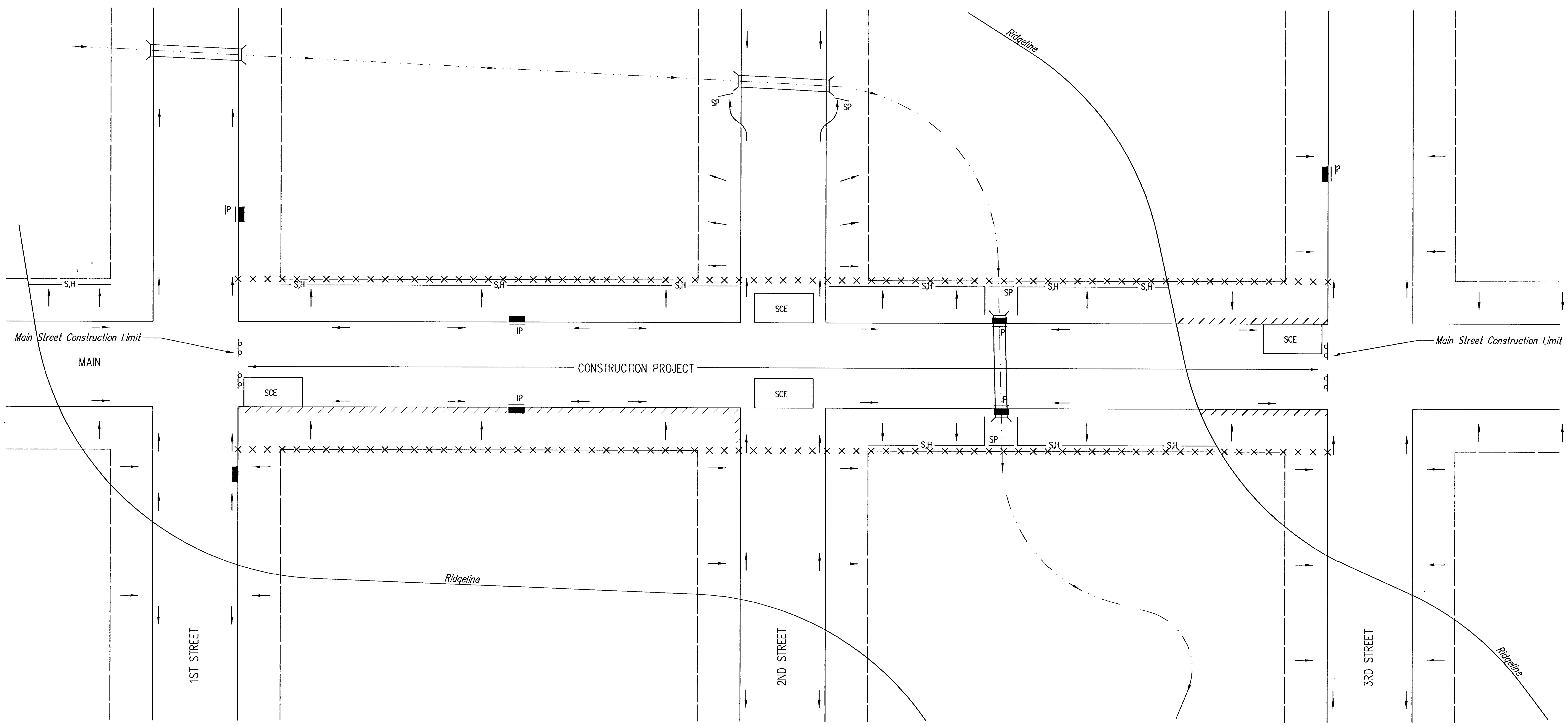
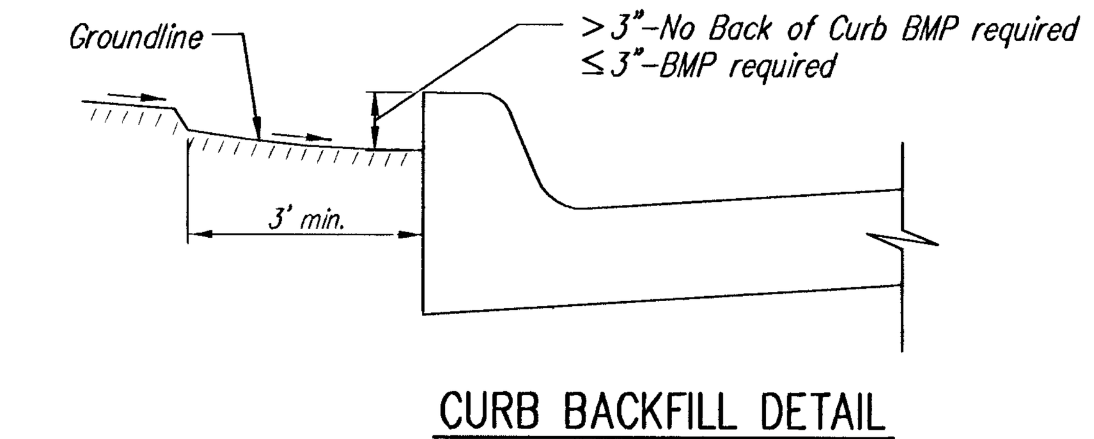
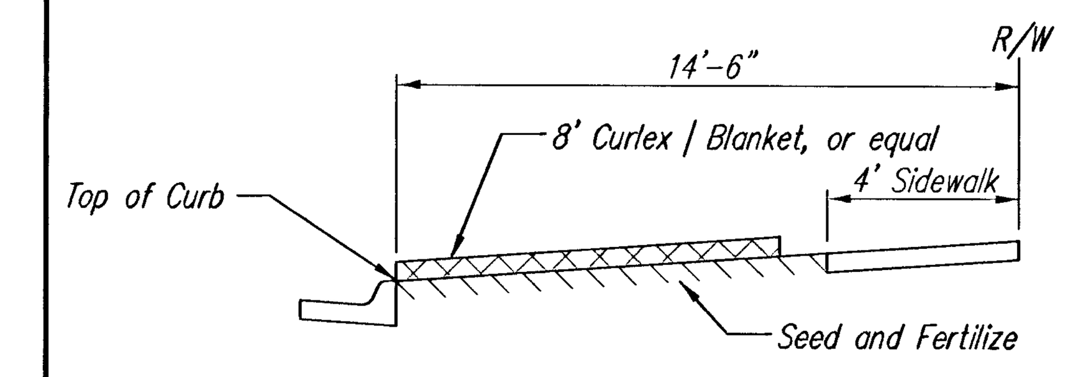
GENERAL NOTES:

1. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPES OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
2. BMP'S MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS.
3. IF THE PROJECT WILL DISTURB 5 ACRES OR MORE, A FEDERAL/STATE NPDES STORMWATER PERMIT IS REQUIRED. A DETAILED STORMWATER POLLUTION PREVENTION PLAN, IS REQUIRED. THE BMP'S SHOWN ON THIS SHEET ARE CONSIDERED TO BE THE MINIMUM TO BE SHOWN IN THE POLLUTION PREVENTION PLAN.
4. FOR PROJECTS DISTURBING LESS THAN 5 ACRES, CONTRACTORS ARE ENCOURAGED TO PREPARE STORMWATER POLLUTION PREVENTION PLANS PRIOR TO CONSTRUCTION.
5. FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE CONTRACTOR TO THE PENALTIES PROVIDED FOR THEREIN.
6. THE APPLICATION OF BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THOSE SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED AS LONG AS THEY ARE EFFECTIVE AND MAINTAINED.

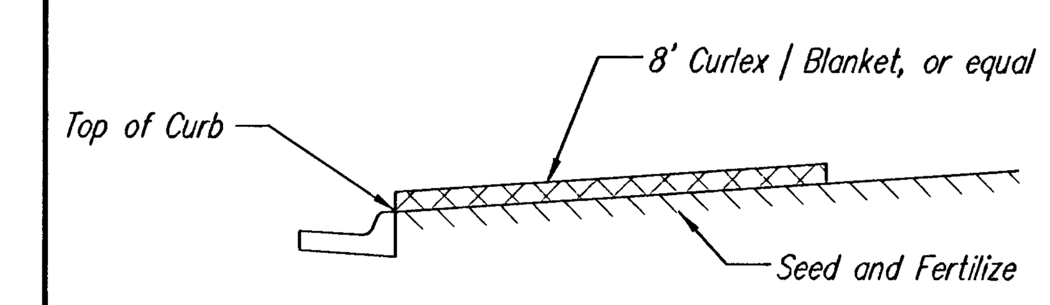




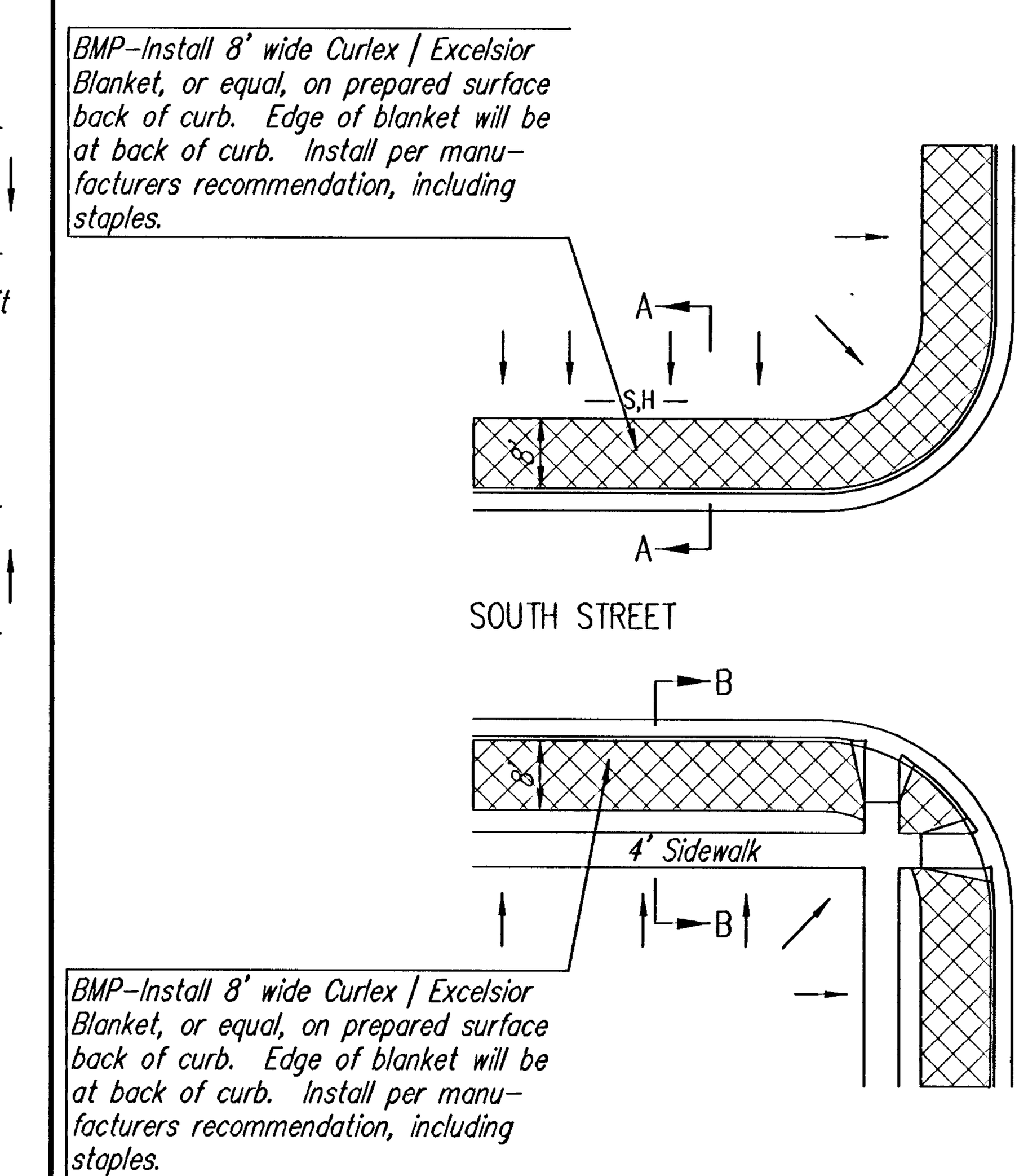
CURB BACKFILL DETAIL



SECTION B-B



SECTION A-A



BACK OF CURB PROTECTION DETAIL

NOTES:

1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLIMENTAL BMP'S WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

LEGEND

Symbol	Description
——-——	R-O-W LIMITS
—→	DRAINAGE FLOW PATH
× × × × ×	R/W LIMIT WITHIN CONSTRUCTION LIMIT
▬	STORM WATER INLETS
IP	INLET PROTECTION
——S,H——	SILT FENCE OR HAYBALE BMP
SP	STREAM PROTECTION
SCE	STABILIZED CONSTRUCTION ENTRANCE
//////	BACK OF CURB PROTECTION

NOTES:

1. GENERAL BMP GOAL IS TO KEEP ALL SEDIMENT CONFINED TO THE CONSTRUCTION SITE, AND OUT OF ALL UNDERGROUND PIPES, DITCHES, AND OTHER DRAINAGE FACILITIES.
2. THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.
3. BMP'S WILL BE REQUIRED AT ALL POINTS ALONG THE PROJECT WHERE DISTURBED EARTH CAN DRAIN ONTO PRIVATE PROPERTY.
4. INLET PROTECTION DEVICES WILL BE REQUIRED WHEREVER WATER CAN DRAIN OFF THE PROJECT SITE INTO AN INLET, INCLUDING ANY SIDE STREET INLETS.
5. BMP'S SHALL BE INSTALLED AT CREEK CROSSINGS SO AS TO PREVENT SEDIMENT FROM ENTERING THEREIN.
6. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED, AS NEEDED, TO PREVENT MUD FROM TRACKING ONTO STREETS NOT UNDER CONSTRUCTION AND ON STREETS WITHIN THE PROJECT LIMITS IF TRAFFIC IS BEING MAINTAINED THROUGH THE PROJECT.
7. ANY MUD TRACKED ONTO STREETS MUST BE REMOVED AT THE END OF EACH WORK DAY.
8. THE CONTACTOR WILL BE REQUIRED TO PLACE BMP'S BACK OF CURB, WHENEVER WATER CAN DRAIN OVER CURB, TO KEEP ERODED SOIL OUT OF THE GUTTERLINES, IN ACCORDANCE WITH THE FOLLOWING:
   A. THE BMP REQUIRED WILL BE CURLEX / EXCELSIOR BLANKET, OR EQUAL. SAID BLANKET SHALL BE PLACED OVER THE APPROPRIATE SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS. (SEE BACK OF CURB PROTECTION DETAIL)
   B. THIS BMP SHALL BE INSTALLED IMMEDIATELY WHENEVER THE CURB IS BACKFILLED TO WITHIN 3" OF THE TOP OF CURB. (SEE CURB BACKFILL DETAIL) OTHER BMP'S MAY BE REQUIRED AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB.
   C. ADDITIONALLY, OTHER BMP'S (HAYBALES, SILT FENCE, ETC.) WILL BE INSTALLED AT LOCATIONS OF CONCENTRATED FLOW RESULTING IN SEDIMENT OVERRUNNING THE MAT.
   D. SHOULD THE PROJECT PLANS SPECIFY THAT THE RIGHT-OF-WAY IS TO BE SODDED, THE EXCELSIOR MAT WILL NOT BE REQUIRED SO LONG AS THE SOD IS PLACED WITHIN 48 HOURS AFTER CURB BACKFILL REACHES A HEIGHT OF 3" OR LESS FROM TOP OF CURB. (SEE DETAIL)

CITY OF WICHITA

SOIL EROSION BMPS STREET IMPROVEMENT PROJECTS

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

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