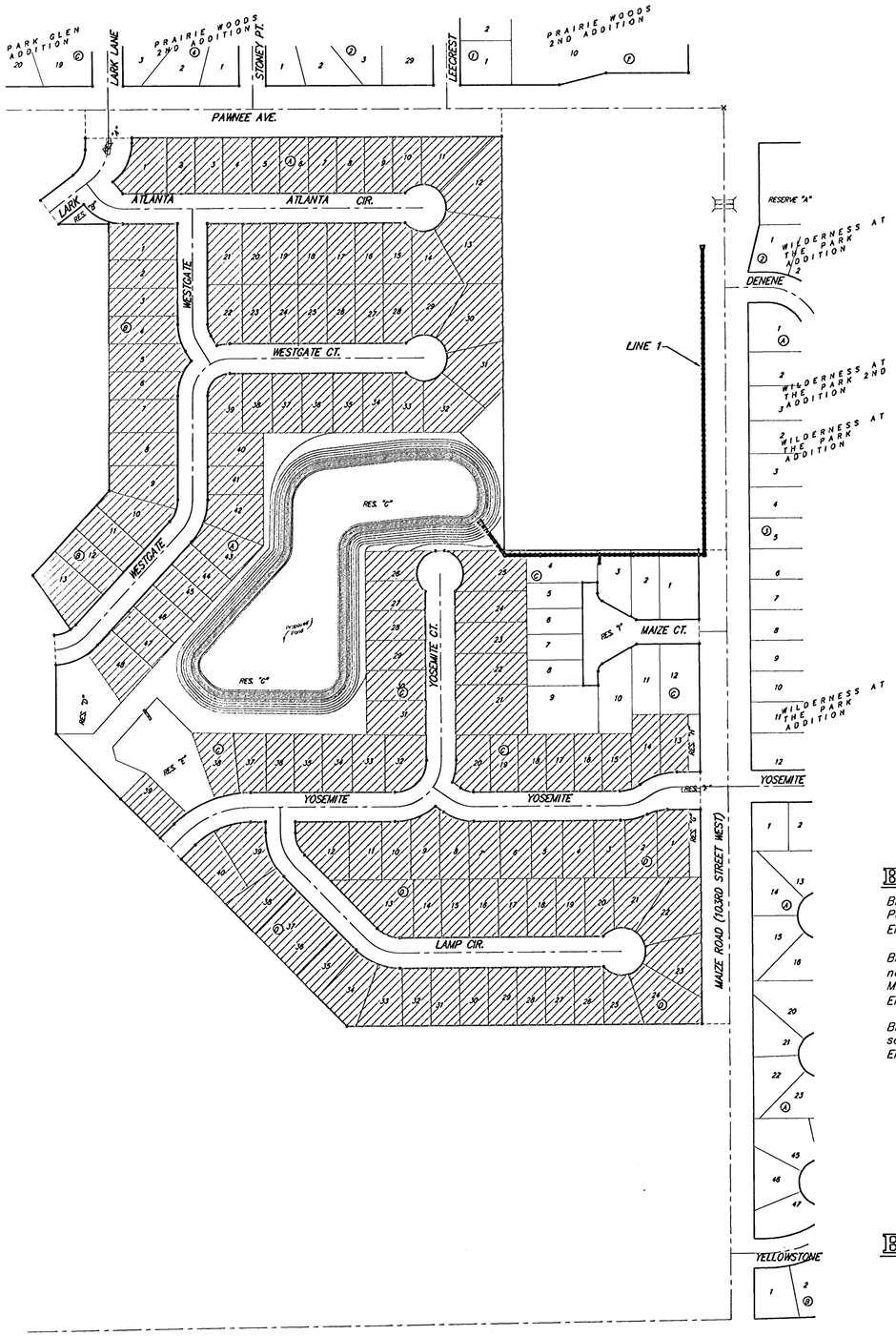


Scale: 1" = 150'

STORM WATER DRAIN #195

to serve

SOUTHERN RIDGE ADDITION

CITY OF WICHITA, KANSAS

Neil Cable, P.E. City Engineer

Project Number

468-83550

O.C.A. Number

751324

Booked 6-21-04 C-764

Sheet Index

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Pond Plan	2
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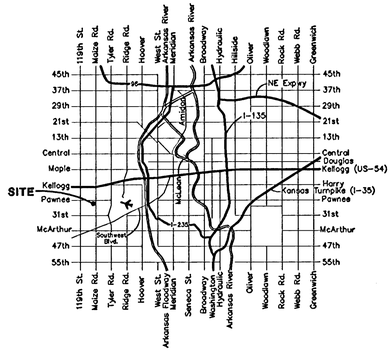
Benchmark

BM #1: COW BM at the SW corner of Pawnee Ave. and Maize Road.
Elev. = 1135.15 (City Datum)

BM #2: "□" in top of curb on the north side of Yosemite, 65' east of Maize Road.
Elev. = 1143.67 (City Datum)

BM #3: COW BM at Shefford on the south side of Pawnee Ave.
Elev. = 1145.53 (City Datum)

Benefit District



Vicinity Map

GENERAL NOTES:

1. *Contractor will be required to provide notice to utility companies a minimum of twenty-four (24) hours prior to any excavation, as follows:*

Kansas One-Call	*687-2470*

The Contractor must notify the following in case of an emergency:

Cox Communications	*262-4270*
Kansas Gas Service	*1-888-482-4950*
Westar Energy	*383-8650*
Aquila Energy	*1-888-482-4950*
Southwestern Bell	*268-2245*
City of Wichita Water Dept.	*268-4563*
City of Wichita Sewer Maint.	*268-4024*
City of Wichita Storm Sewer Maint.	*268-4090*
City of Wichita Traffic Maint.	*268-4034*
Conoco Pipeline Co.	*1-800-231-2551*
Williams Pipeline Co.	*529-6600*
Phillips Pipeline Co.	*1-800-766-8230*

2. *Underground utility service lines and overhead utility pole lines are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.*

3. *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.*

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

5. *The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be reestablished by a licensed land surveyor in accordance with state laws.*

6. *All areas disturbed during construction shall be seeded, mulched, and fertilized as indicated on the pond plan.*



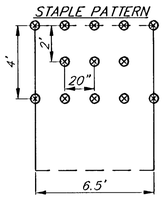
As Built 6/03 KK
Per Plan Unless Noted Otherwise

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

STAPLE PATTERN "D"

3-1/2 staples per sq. yd. using 6-inch, 11 ga. wire "U" staples. 8-inch staples and longer may be used for loose soils. 9 ga. staples or heavier may be necessary in hard or rocky soils.

Contractor shall follow manufacturers installation instructions regarding overlap dimensions. The overlap shall have a minimum dimension of three inches (3").



Erosion control mat.

EARTH WORK TOTALS

	C.Y. Cut	C.Y. Fill
Mass Grading	6,711	106,070
Pond Construction	111,642	0
Total Earthwork	118,173	106,070

Earthwork quantities do not include correction factors and are for reference only. All cost associated with mass grading shall be included in the bid item "Mass Grading".

(140) Existing Grade

140 Proposed Grade

Silt Fence

Scale: 1" = 40'

Pond Data:
Static WS Elev. = 131.0 City Datum
Design WS Elev. = 137.3 City Datum
Peak Discharge = 110 cfs

Install 4,102 S.Y. North American Green Erosion Control Mat SC150, or approved equal. Erosion control mat shall be installed and anchored per details, this sheet. Note: This quantity does not include excess material necessary for overlap and anchoring.

Install 2,213 L.F. Silt Fence per detail, sheet 14.

Construct pond per detail, this sheet.

Sidewalk to be constructed with street project.

RES. "C"

RES. "E"

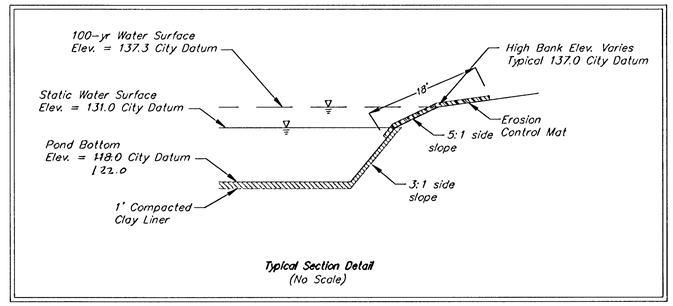
Bottom=122.0 C.D.

Prop. 36" RCP (by Others)

Prop. 18" RCP (by Others)

Trees

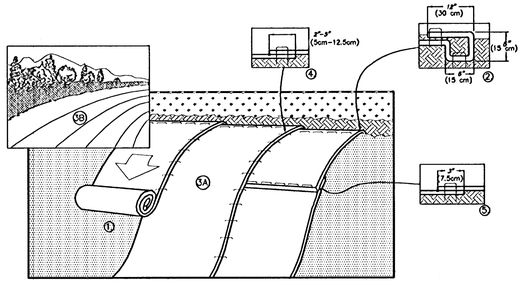
BL Sta 0+00 = East line of Res. "C"



Typical Section Detail
(No Scale)

SLOPE INSTALLATION

NORTH AMERICAN GREEN



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-448-2040
www.nagreen.com

NOTES:

1. Pond bottom and sideslopes below static pool elevation shall be over-excavated 1' and a 1' clay liner shall be compacted to 95% std. density. The plasticity index (P.I.) shall be at least 30. The compaction and P.I. shall be verified during construction. P.I. determination and compaction testing shall be arranged by the contractor at the request of the inspector. Cost shall be incidental to "Site Clearing & Restoration".
2. Any excess excavation shall be stored at a location determined by the engineer, out of easements and R/W. Area will be staked by Engineer. Additional area will be staked out if needed.
3. All of Reserve "C" above the static water surface shall be seeded and mulched as follows: (Permanent Seeding)
   SEED -- Kansas Premium Fescue Blend; 8#/1000 Sq. Ft.
   FERTILIZER -- 12-24-12 Ratio at 350 Lbs./Ac.
   MULCH -- 2 Tons Prairie Hay / Acre

   All other disturbed areas not in street R/W are to be seeded and mulched as follows: (Temporary seeding)
   SEED -- Rye grass (PLS)--5#/1000 Sq. Ft.
   MULCH -- 2 Tons Prairie Hay / Acre
4. Install Erosion Control Mat from 1' below the water surface to 18' up the bank.
5. Contractor to strip top 3" of soil before mass grading and stockpile. Top soil stockpile to be redistributed over entire disturbed area excluding street right-of-way and ponds to achieve planned grade.
6. Compaction of 90% shall be obtained in all fill areas.

Remove trees ONLY as necessary for pond construction and as approved by Engineer. Cost of removal to be incidental to lump sum bid item "Site Clearing & Restoration".

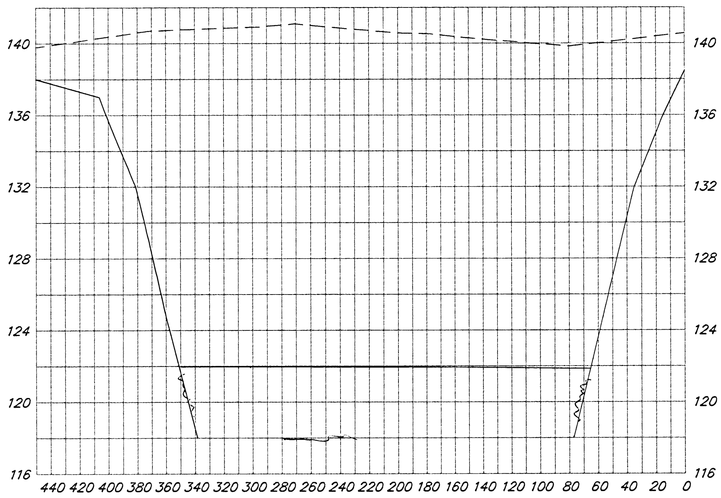
As Built 6/03 KK Per Plan Except as Noted

SOUTHERN RIDGE ADDITION
POND PLAN
WICHITA, KANSAS

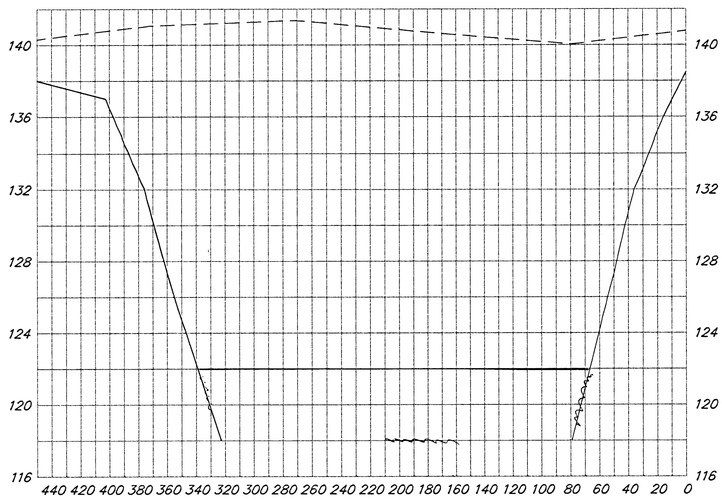
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER				SHEET 2 OF 16
DESIGN NBW	DRAWN TMS	APPROVED	DATE 01/03	SCALE Noted

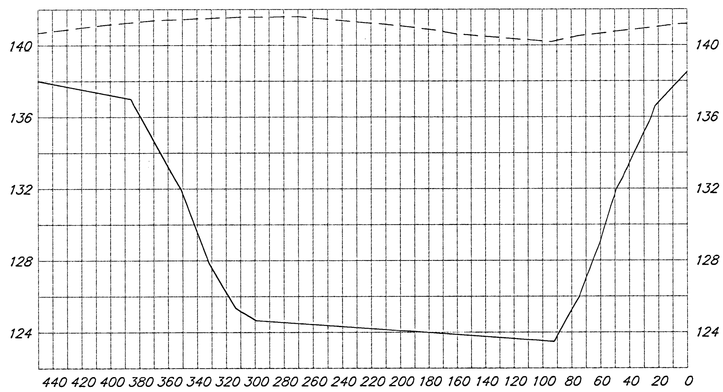
02-11-E462
Slidge/Pond



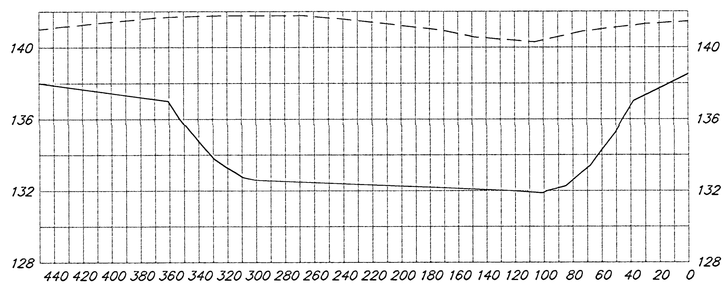
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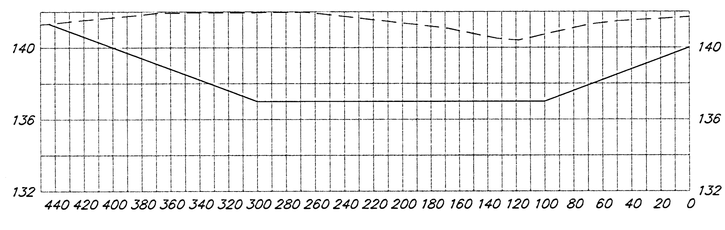
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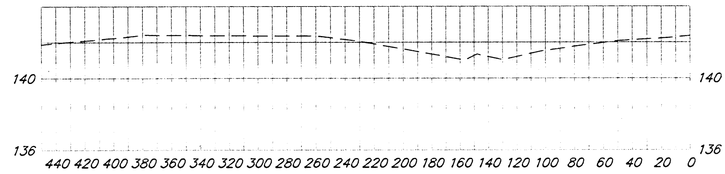
0+95



0+70



0+45



0+00

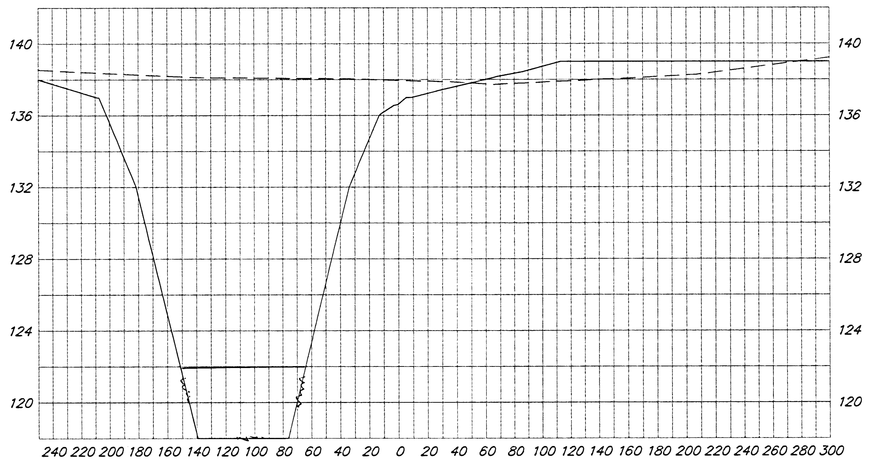
BAUGHMAN COMPANY P. A.
ENGINEERING & SURVEYING
316/262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

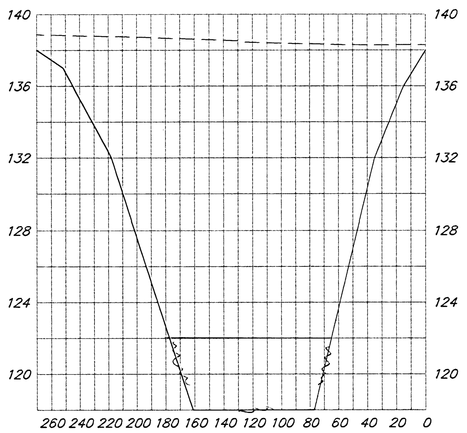
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REV.

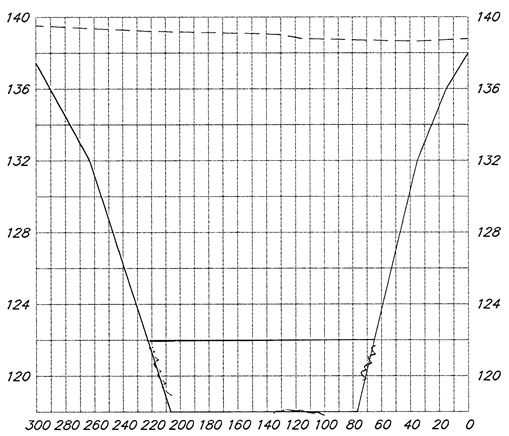
SHEET 5/16

4+00

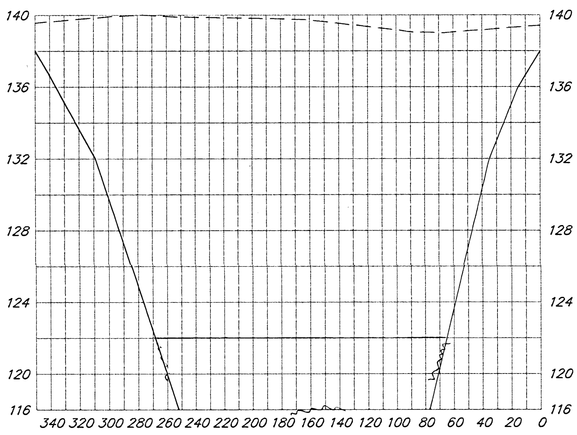




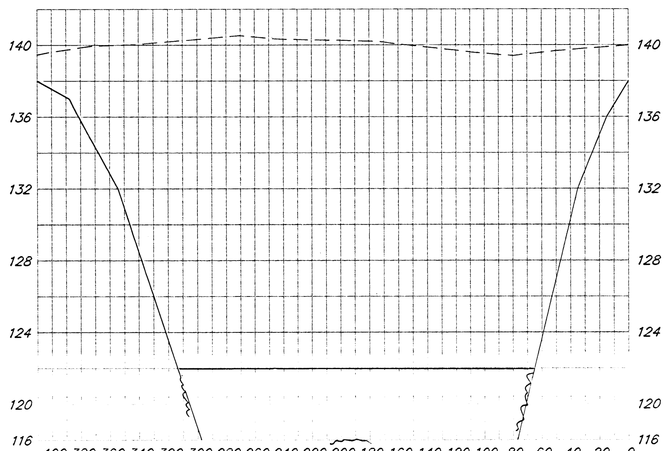
3+50



3+00



2+50



2+00

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316/262-2271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER

REV.

SHEET 4/16

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

REV.

PROJECT NUMBER

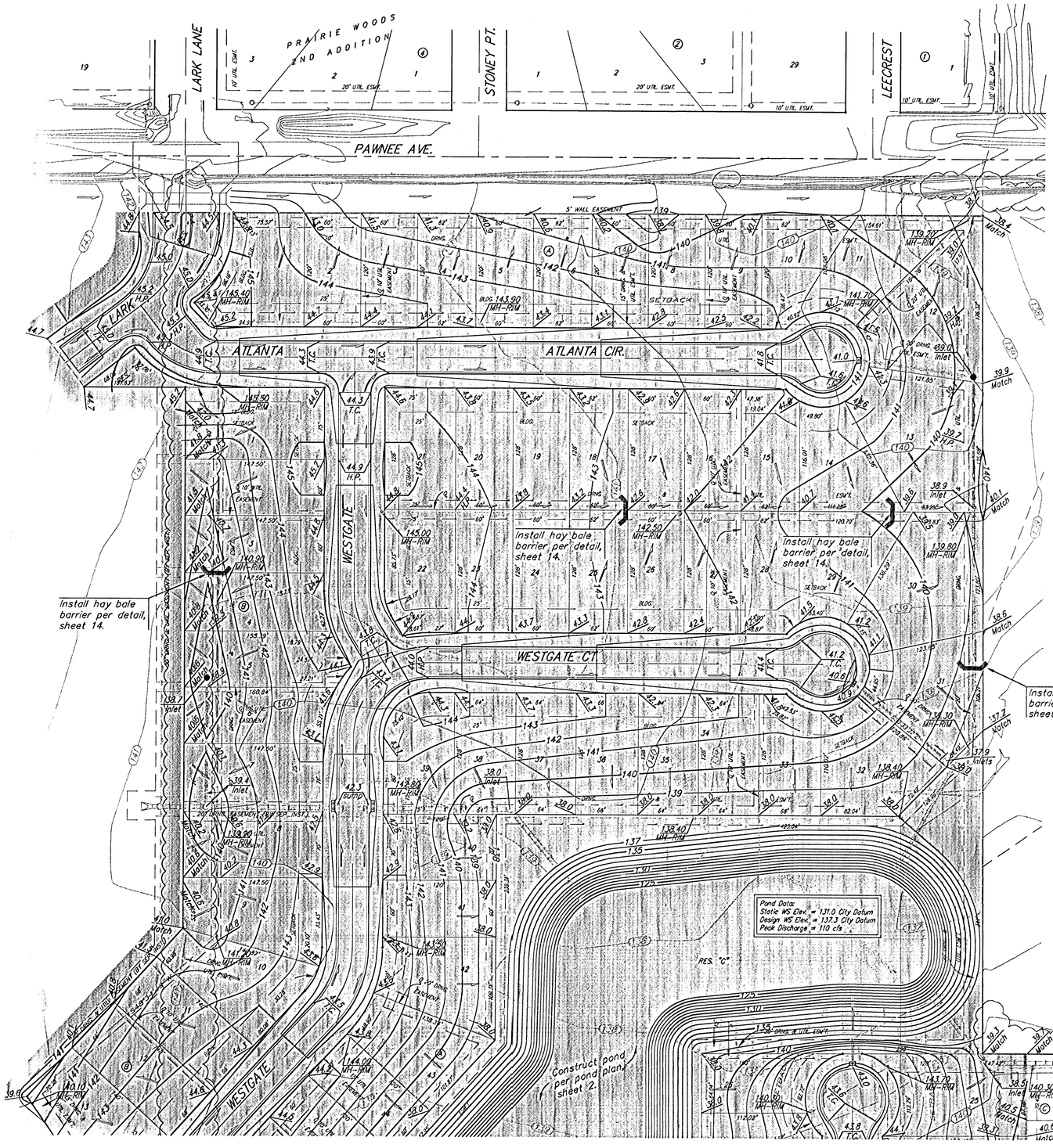
SHEET 5/16

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

PROJECT NUMBER

REV.

SHEET 6/16

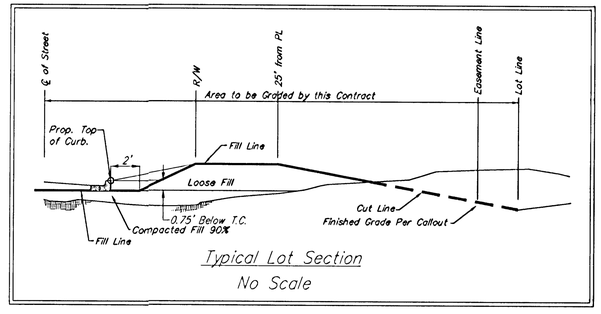


All areas disturbed during construction outside of reserves and not under proposed pavement are to be seeded, mulched and fertilized as follows:
Seed: – Rye Grass (PLS) – 5#/1000 Sq. Ft.
Mulch: – 2 tons prairie hay/acre.
Cost of seeding and mulching shall be incidental to "Project Seeding".

EARTH WORK TOTALS

	C.Y. Cut	C.Y. Fill
Mass Grading	6,711	106,070
Pond Construction	111,642	0
Total	118,173	106,070

Earthwork quantities are for reference only. All cost associated with mass grading shall be incidental to lump sum bid item "Mass Grading".
1. Contractor to strip top 3" of soil before mass grading and stockpile. Top soil stockpile to be redistributed over entire disturbed area excluding street right-of-way and ponds to achieve planned grade.
2. Compaction of 90% shall be obtained in all fill areas.
3. It shall be the Contractor's responsibility to protect the sanitary sewer, water distribution system, and storm water sewer during mass grading. Any damage done to these systems by Contractor or subcontractor shall be repaired at no additional cost to the project.



Typical Lot Section
No Scale

Per Plan 7/03

SOUTHERN RIDGE ADDITION
MASS GRADING PLAN
WICHITA, KANSAS

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

PROJECT NUMBER					SHEET
468-83550					7 of 16
DESIGN	DRAWN	APPROVED	DATE	SCALE	
NBW	TMS		03/03	Noted	

02-1-2462
Shidgy/Moss

Scale: 1" = 60'

Pond Data:
Static WS Elev. = 131.0 City Datum
Design WS Elev. = 137.3 City Datum
Peak Discharge = 110 cfs

Construct pond per pond plan, sheet 2.

Install hay bale barrier per detail, sheet 14.

Area to be graded

(145) Existing Grade

145 Proposed Grade

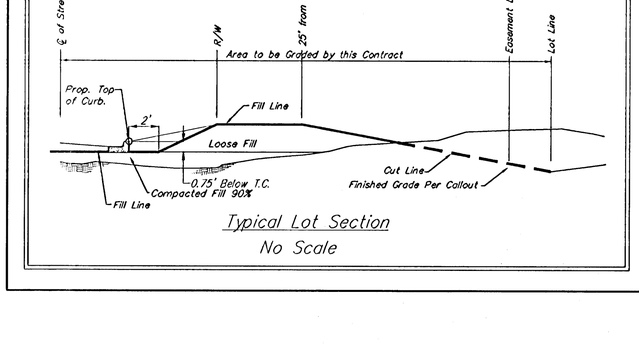
Remove trees ONLY IF APPROVED BY ENGINEER as necessary for mass grading. Cost of removal to be incidental to lump sum bid item "Site Clearing & Restoration".

All areas disturbed during construction outside of reserves and not under proposed pavement are to be seeded, mulched and fertilized as follows:
Seed: – Rye Grass (PLS) – 5#/1000 Sq. Ft.
Mulch: – 2 tons prairie hay/acre.
Cost of seeding and mulching shall be incidental to "Project Seeding".

EARTH WORK TOTALS

	C.Y. Cut	C.Y. Fill
Mass Grading	6,711	106,070
Pond Construction	111,642	0
Total	118,173	106,070

Earthwork quantities are for reference only. All cost associated with mass grading shall be incidental to lump sum bid item "Mass Grading".
1. Contractor to strip top 3" of soil before mass grading and stockpile. Top soil stockpile to be redistributed over entire disturbed area excluding street right-of-way and ponds to achieve planned grade.
2. Compaction of 90% shall be obtained in all fill areas.
3. It shall be the Contractor's responsibility to protect the sanitary sewer, water distribution system, and storm water sewer during mass grading. Any damage done to these systems by Contractor or subcontractor shall be repaired at no additional cost to the project.



Typical Lot Section
No Scale

Per Plan 7/03

SOUTHERN RIDGE ADDITION
MASS GRADING PLAN
WICHITA, KANSAS

BAUGHMAN COMPANY P.A.
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PROJECT NUMBER 468-83550 | SHEET 8 OF 16

DESIGN	DRAWN	APPROVED	DATE	SCALE
NBW	TMS		03/03	Noted

02-11-2462
Bridge/Mass

BENCHMARKS:
BM #1: COW BM at the SW corner of Pawnee Ave. and Maize Road.
Elev. = 135.15 (City Datum)

BM #2: ⌂ " in top of curb on the north side of Yosemite, 65' east of Maize Road.
Elev. = 143.67 (City Datum)

BM #3: COW BM at Shefford on the south side of Pawnee Ave.
Elev. = 145.53 (City Datum)

Scale: 1" = 20' Horizontal
1" = 5' Vertical
• = Iron

RESERVE "A"

WILDERNESS AT THE PARK ADDITION

WILDERNESS AT THE PARK 2ND ADDITION

DENENE

MAIZE ROAD

UNPLATTED

LINE 1

Ex. 2'+X'+/- RCBC

Ex. A.C. Pvm't

Ex. 8" G

Ex. 16" W

Ex. 8" SS

Ex. UG SWB

Ex. Fence

50' R/W

60' R/W

20' Util. Esmt.

103.10'

107.05'

73'

75'

Ditch 60' to RCBC to ensure positive drainage. Regrade ditch slopes to match proposed grade. Cost to be subsidiary to "Site Clearing & Restoration".

CAUTION! SWB Line Near.

Sta 0-40, Line 1 Begin construction of 48" RCP w/ end section. Install 68.0 S.Y. heavy stone rip-rap as indicated.

Remove & Replace Fence as Necessary for Construction. Cost included in "Site Clearing & Restoration."

Sta 3+50.0, Line 1 Match Point

CAUTION! SWB Line Near.

Ex. 2'+X'+/- RCBC

Proposed Grade

Existing Grade

700.0 L.F. 48" RCP @ +0.080%

LINE 1

129.19 = Flow

129.22 = Flow

129.26 = Flow

129.30 = Flow

129.34 = Flow

129.38 = Flow

129.42 = Flow

129.46 = Flow

129.50 = Flow

0-40

0+00

0+50

1+00

1+50

2+00

2+50

3+00

3+50

As Built 7/03 KK

SOUTHERN RIDGE ADDITION
LINE 1
STORM WATER SEWER IMPROVEMENTS

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

PROJECT NUMBER 488-83550

SHEET 9 OF 16

DESIGN	DRAWN	APPROVED	DATE	SCALE
NBW	TMS		03/03	Noted

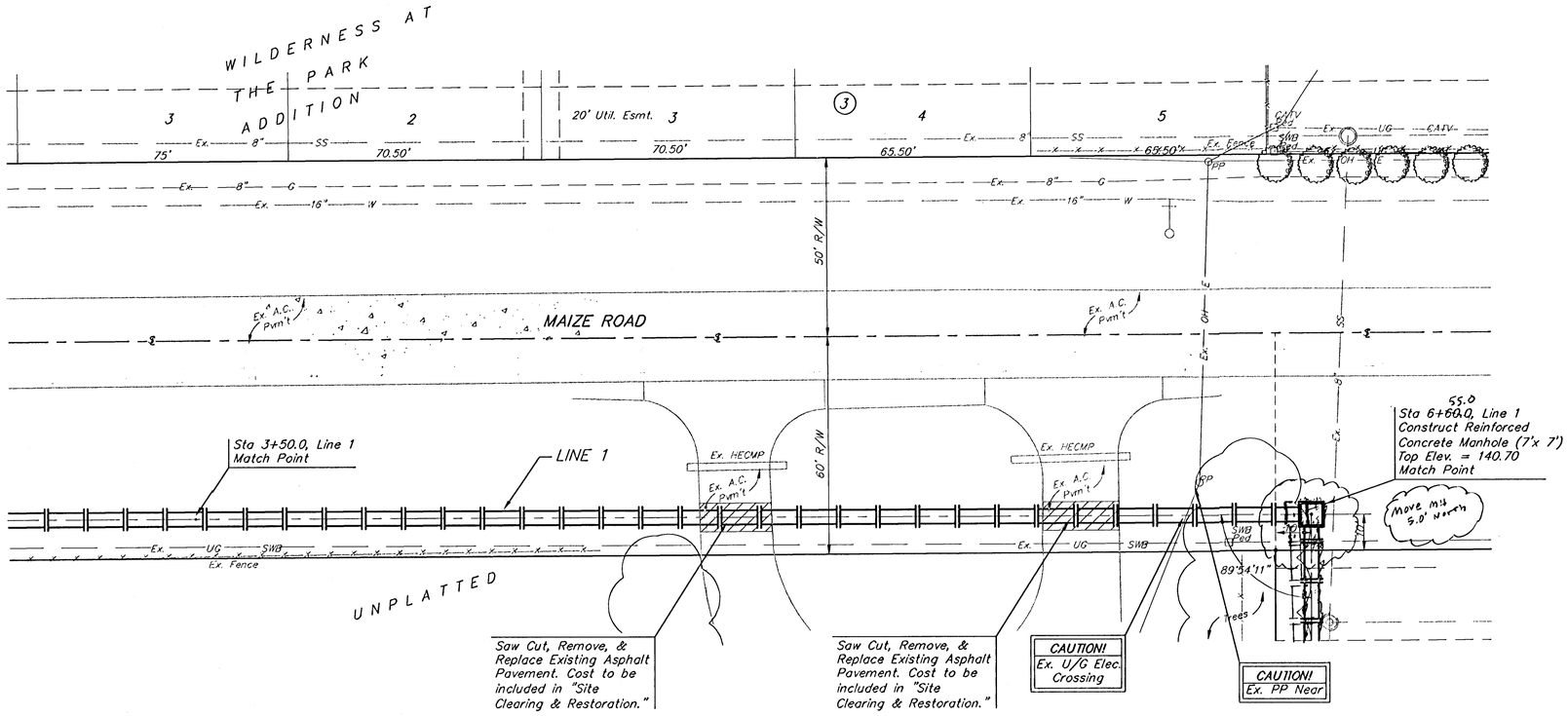
02-11-E462

SRidge/SW01

BENCHMARKS:
BM #1: COW BM at the SW corner of Pawnee Ave. and Maize Road.
Elev. = 135.15 (City Datum)

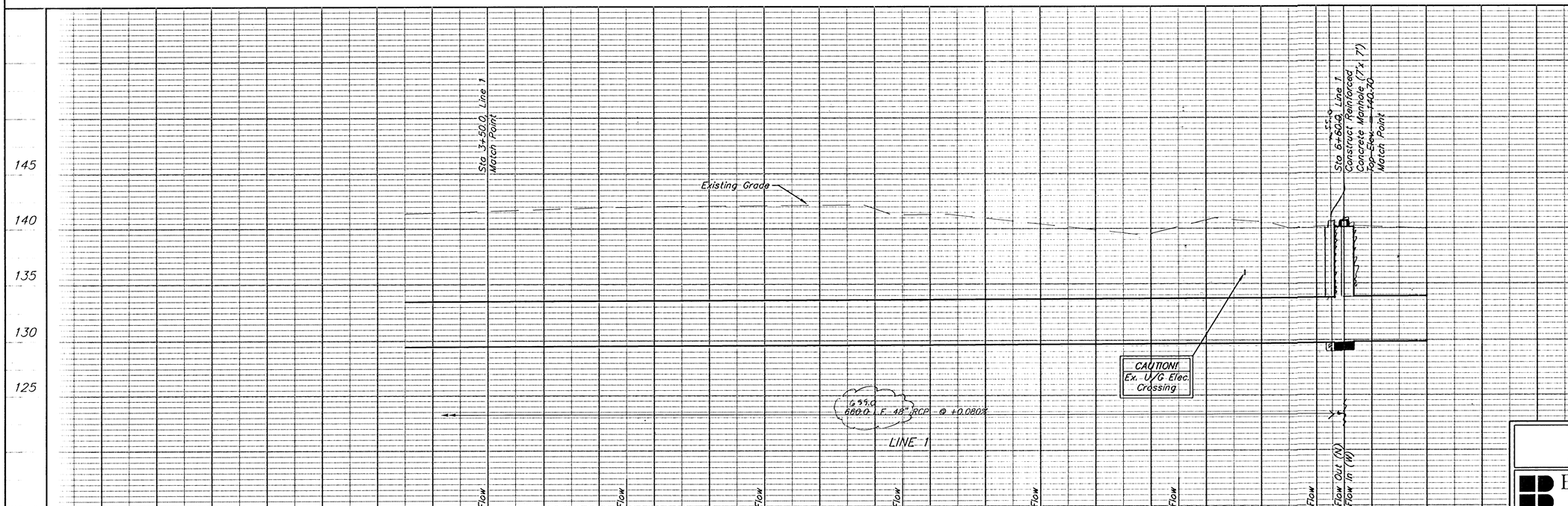
BM #2: ⌂ " in top of curb on the north side of Yosemite, 65' east of Maize Road.
Elev. = 143.67 (City Datum)

BM #3: COW BM at Shefford on the south side of Pawnee Ave.
Elev. = 145.53 (City Datum)



Scale: 1" = 20' Horizontal
1" = 5' Vertical
• = Iron

Remove trees ONLY as necessary for storm sewer construction and as approved by Engineer. Cost of removal to be incidental to lump sum bid item "Site Clearing & Restoration".



As Built 4/03 KK

SOUTHERN RIDGE ADDITION
LINE 1
STORM WATER SEWER IMPROVEMENTS

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

PROJECT NUMBER	SHEET
468-83550	10 OF 16

DESIGN	DRAWN	APPROVED	DATE	SCALE
NBW	TMS		03/03	Noted

02-1-462
S:\Prime\Proj\02-1-462

BENCHMARKS:
BM #1: COW BM at the SW corner of Pawnee Ave. and Maize Road.
Elev. = 135.15 (City Datum)

BM #2: ⏍ " in top of curb on the north side of Yosemite, 65' east of Maize Road.
Elev. = 143.67 (City Datum)

BM #3: COW BM at Shefford on the south side of Pawnee Ave.
Elev. = 145.53 (City Datum)

Scale: 1" = 20' Horizontal
1" = 5' Vertical
• = Iron

MAIZE ROAD
60' R/W
SWD
UG
Ex. OH E
Ex. Pvt. C.L.
Ex. Fence
Trees
Mtg Ped
RP
10
85'
89°54'11"

CAUTION! Ex. UG SWB crossing

Sta 6+60.0, Line 1
Match Point

SOUTHERN RIDGE ADDITION

1
2
3
4
25

LINE 1

Ex. 8" SS

Moved MH 2.0' North

Sta 8+10.0, Line 1
Construct std. manhole (6' dia.) w/ grated lid (Neenah R-2501 or equivalent)
Top Elev. = 138.70

CAUTION! Ex. 8" SS crossing

Sta 8+80.6, Line 1
Construct std. manhole (6' dia.)
1 – 24" Stub (S)
End section incidental to 24" stub. Install 15.0 S.Y. light stone rip-rap as indicated.
Top Elev. = 139.40

Sta 10+07.6, Line 1
Construct std. manhole (6' dia.) w/ grated lid (Neenah R-2501 or equivalent)
Top Elev. = 138.30

Sta 10+83.8, Line 1
Construct std. manhole (6' dia.) w/ grated lid (Neenah R-2501 or equivalent)
Top Elev. = 138.20

Moved MH 2.0' North

60'
92°7'31"
87°52'29"
180°00'00"
180°00'00"
30'
16.15'
9'
4.16'
15'
5'
20' Drng. & Util. Esmt.
70.58'
152'
12°13'48"
17.42'
Ex. Fence
Ex. Fence
Trees
Trees
Trees
UNPLATTED

Install hay bale barrier per detail, sheet 14.

Install hay bale barrier per detail, sheet 14.

Prop. 4' Walk
135
130
125
Proposed Pond
Res. "C"

Remove trees ONLY as necessary for storm sewer construction and as approved by Engineer. Cost of removal to be incidental to lump sum bid item "Site Clearing & Restoration".

Pond Data:
Static WS Elev. = 131.0 City Datum
Design WS Elev. = 137.3 City Datum
Peak Discharge = 110 cfs

Sta 11+62.6, Line 1
End construction of 48" RCP.
1 – 48" Special RC Headwall
Install 41.7 S.Y. heavy stone rip-rap as indicated.

145
140
135
130
125

Sta 6+60.0, Line 1
Match Point

CAUTION! Ex. UG SWB crossing

Proposed Grade (This Project)

Existing Grade

Static WS Elev. = 131.0

150.0 L.F. 48" RCP @ +0.093%
70.6 L.F. 48" RCP @ +0.085%
127.0 L.F. 48" RCP @ +0.087%
76.2 L.F. 48" RCP @ +0.092%
77.7
78.8 L.F. 48" RCP @ +0.089%

129.75 = Flow Out (N)
129.85 = Flow In (W)
129.89 = Flow
129.93 = Flow
129.98 = Flow
129.99 = Flow Out (E)
130.04 = Flow In (W)
130.07 = Flow
130.70 = Flow Out (E)
130.75 = Flow In (W)
130.80 = Flow In (S)
130.17 = Flow
130.21 = Flow
130.25 = Flow
130.26 = Flow Out (E)
130.31 = Flow In (W)
130.35 = Flow
130.38 = Flow Out (E)
130.43 = Flow In (NW)
130.44 = Flow
130.49 = Flow
130.50 = Flow

11+50 – 11+62.6
Lt. 56.0
As Built 6/03 V.W.

6+60.0 6+55
7+00
7+50
8+00 8+10.0 8+09.0
8+50
8+80.6 8+76
9+00
9+50
10+00 10+07.6 10+02.6
10+50
10+83.8 10+78.8
11+00

LINE 1

SOUTHERN RIDGE ADDITION
LINE 1
STORM WATER SEWER IMPROVEMENTS

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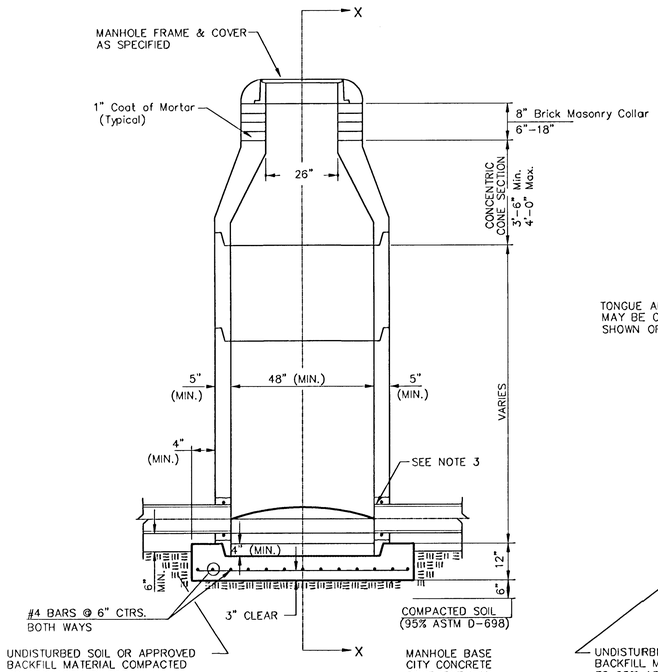
PROJECT NUMBER 488-83550

DESIGN	DRAWN	APPROVED	DATE	SCALE
NBW	TMS		03/03	Noted

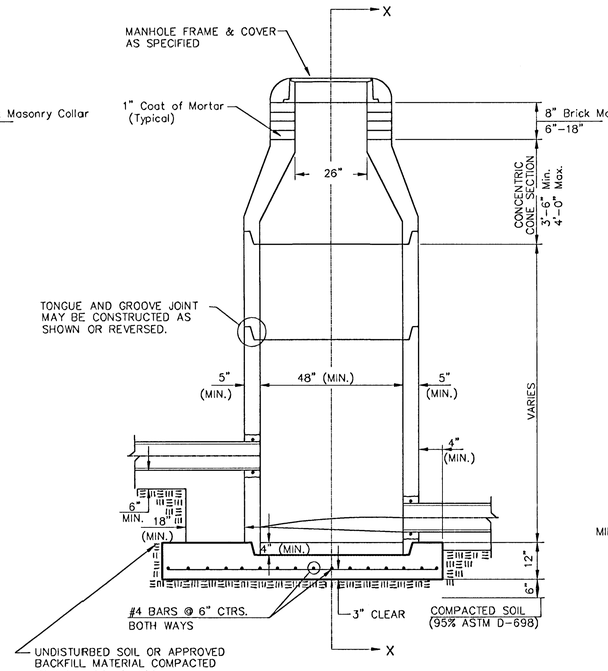
SHEET 11 OF 16

02-11-F467

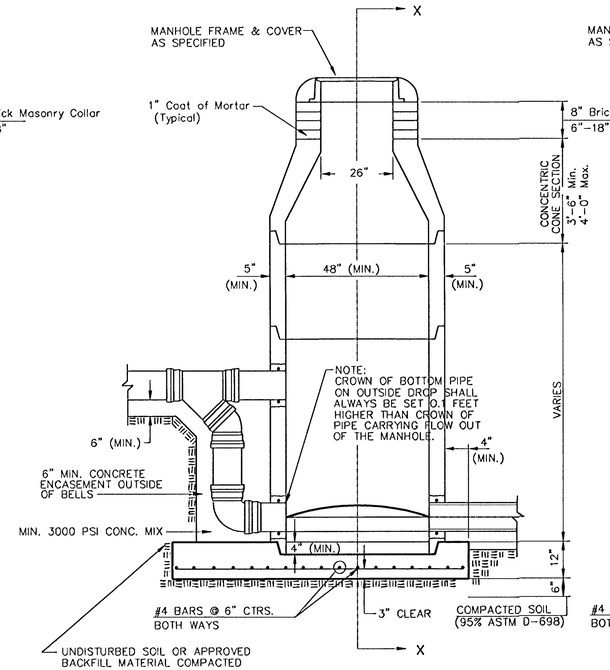
SEWER APPURTENANCES DETAILS



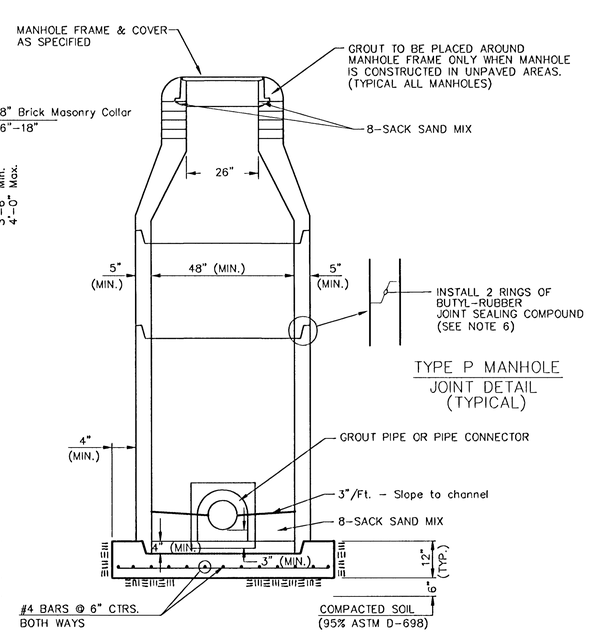
TYPE P STANDARD MANHOLE



TYPE P INSIDE DROP MANHOLE



TYPE P OUTSIDE DROP MANHOLE



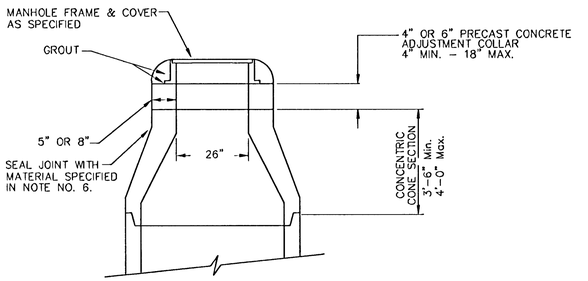
TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

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 2 COATS TNEMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
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 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 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

STD. MANHOLE DETAILS
SEWER APPURTENANCES

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PROJECT NUMBER	SHEET
488-63550	12 OF 16

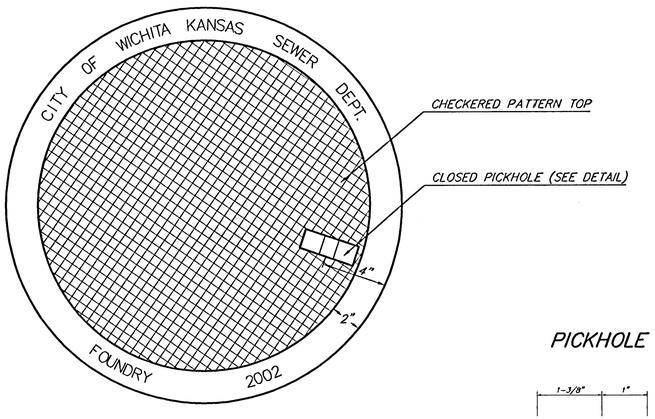
DESIGN	DRAWN	APPROVED	DATE	SCALE
STAFF	STAFF		03/03	NONE

Std.Manhole

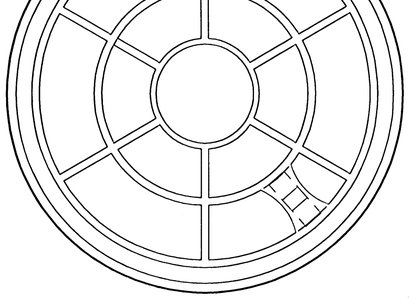
MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

MANHOLE COVER
Weight = 180 Lbs.

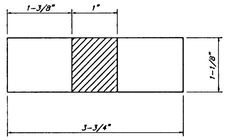


TOP VIEW

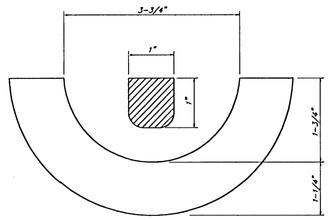


BOTTOM VIEW

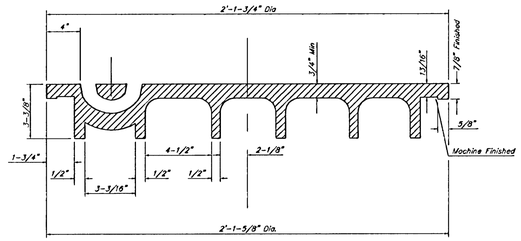
PICKHOLE DETAIL



TOP VIEW

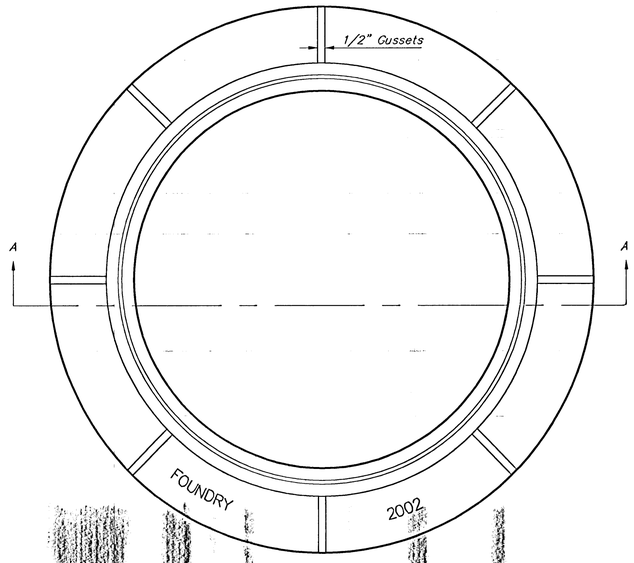


SECTION VIEW

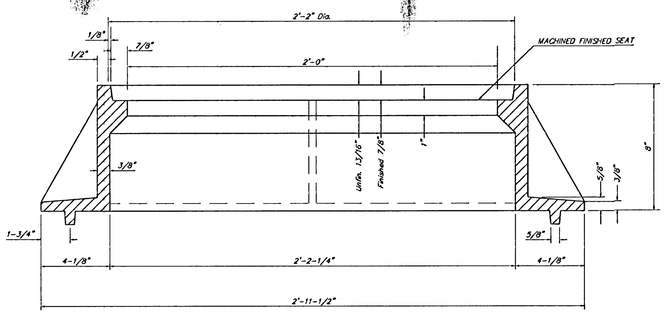


SECTION VIEW

MANHOLE FRAME
Weight = 145 Lbs.



TOP VIEW



SECTION A–A

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.

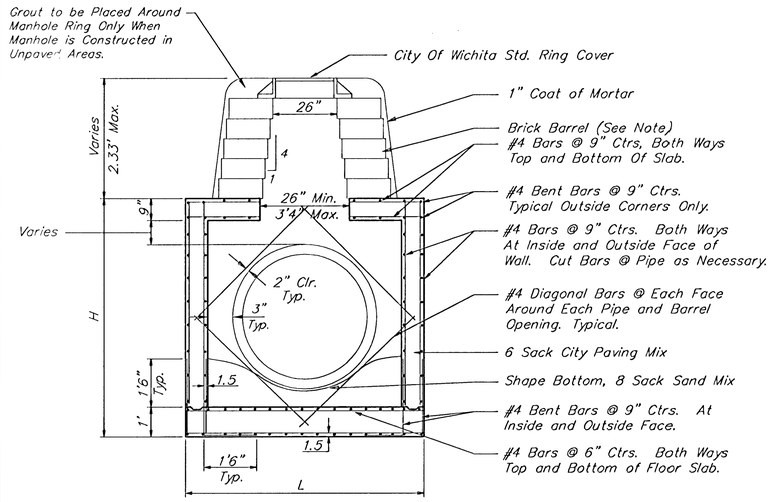
MANHOLE FRAME AND COVER DETAIL
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

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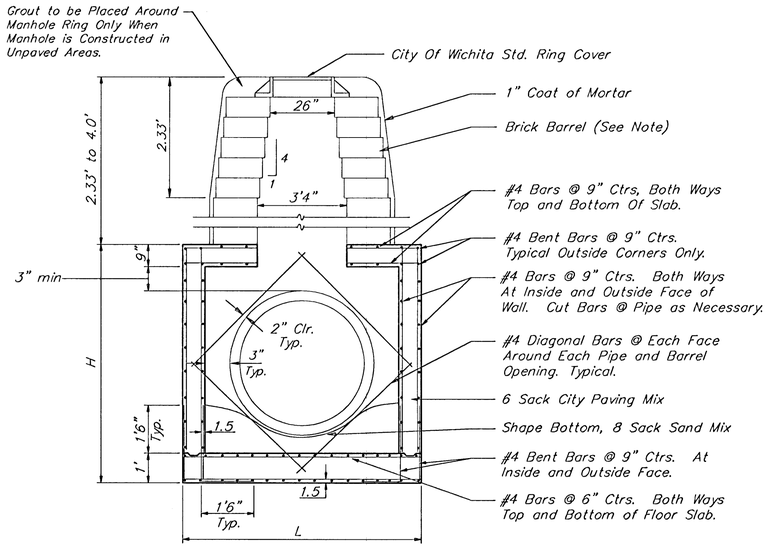
PROJECT NUMBER	SHEET
488-83550	13 OF 16

DESIGN	DRAWN	APPROVED	DATE	SCALE
STAFF	STAFF		03/03	NONE

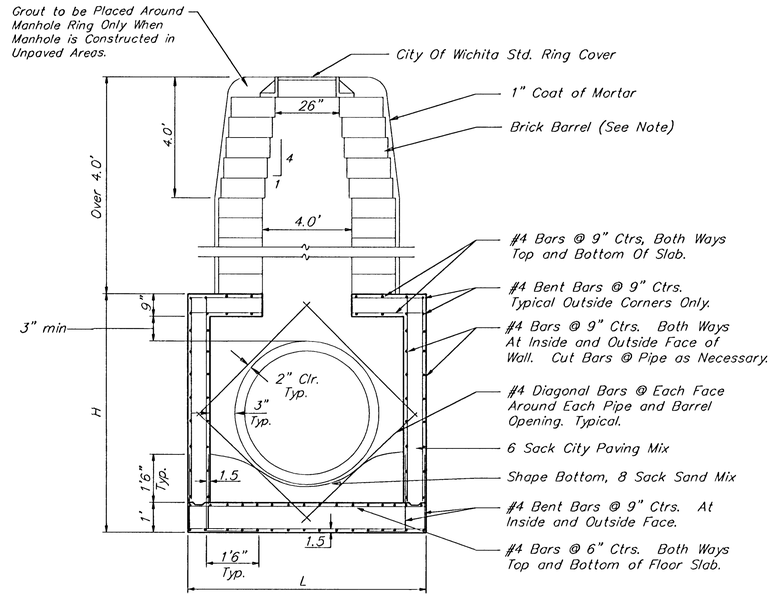
L:\Details\Manhole



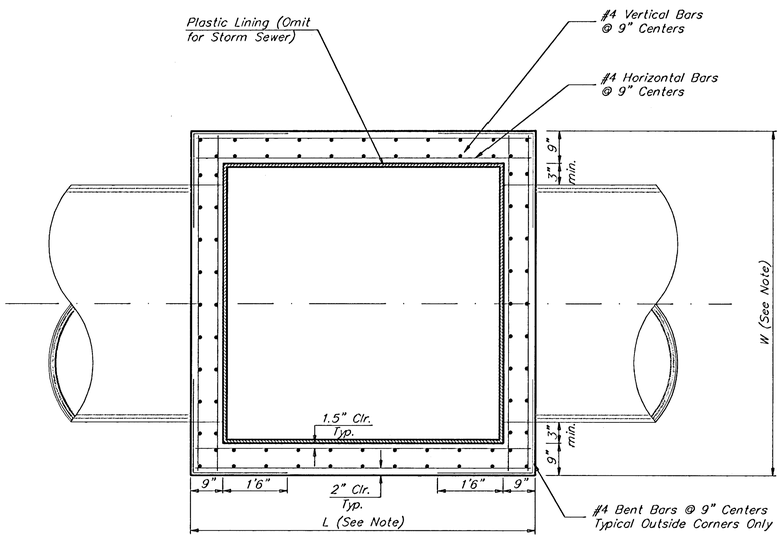
REINFORCED CONCRETE MANHOLE
DEPTH OF STACK: 0' TO 2.33'



REINFORCED CONCRETE MANHOLE
DEPTH OF STACK: 2.33' TO 4.0'



REINFORCED CONCRETE MANHOLE
DEPTH OF STACK: OVER 4.0'



TOP VIEW

Notes:

Brick barrels less than 16' deep shall have 8" walls except when located within public street or alley pavement; then the wall shall be 12". Brick barrels more than 16' deep shall have 12" walls. The "L" and "W" dimensions shall be a minimum of 5'6" for brick barrels with 8" walls and 6'2" for brick barrels with 12" walls when the brick barrels are over 4' in height. Completed manhole shall be without leaks and watertight.

Concrete wall thicknesses shown represents manhole type located within traffic bearing areas. Manhole wall, base, & top dimensions may be reduced when manholes are not subject to vehicle loads. Contractor shall be required to submit shop drawings to the Engineer for approval.

CITY OF WICHITA STANDARD
REINFORCED CONCRETE MANHOLE

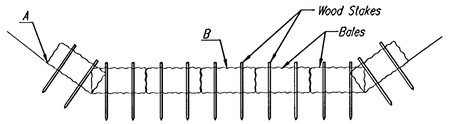
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PROJECT NUMBER	SHEET
488-83580	14 of 16

DESIGN	DRAWN	APPROVED	DATE	SCALE
C.O.W.	STAFF		03/03	NONE

Universal/Remicity 99-04-P171

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 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".

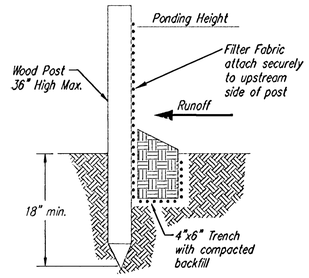
List of common placement/installation mistakes to avoid:

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?



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.

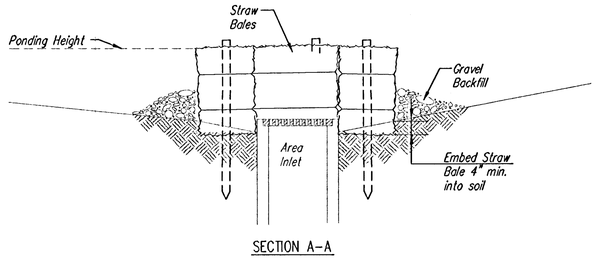
List of common placement/installation mistakes to avoid:

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, ilails, 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.

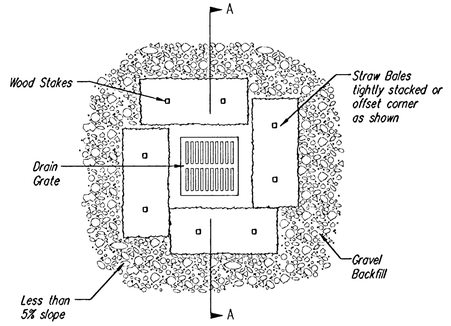
Inspection and Maintenance:

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?



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.

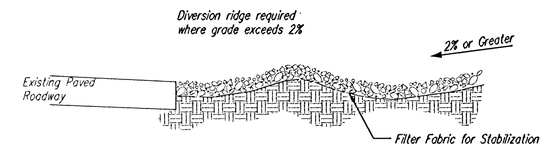
List of common placement installation mistakes to avoid:

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.

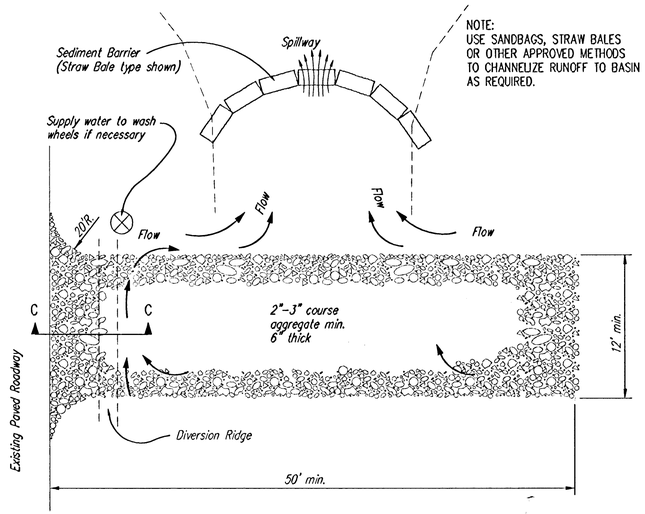
Inspection and Maintenance:

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?



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.

* FOR INFORMATION ONLY

4,102 SY EROSION CONTROL MAT
8 EA. STRAW BALE DITCH CHECKS
2,213 LF SILT FENCE
1 EA. STABILIZED CONSTRUCTION ENTRANCE
3 EA. STRAW BALE BARRIERS FOR AREA INLETS

* TO BE PAID FOR AS THE LUMP SUM BID ITEM "EROSION CONTROL BMP'S"

CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

PROJECT NUMBER	OCA NO.
468-83550	751324
DATE: JAN 2003	SHEET 15 OF 16

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