STORM WATER DRAIN IMPROVEMENTS

to serve

WILLOWBEND NORTH ESTATES 2ND ADDITION

CITY OF WICHITA, KANSAS

Neil Cable, P.E. City Engineer

Private Project Number

1371 PPS (607861)

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	383-3650
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. Utility service lines, poles, valve boxes, meters, and etcetera 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. Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance an site location. Locations, 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.

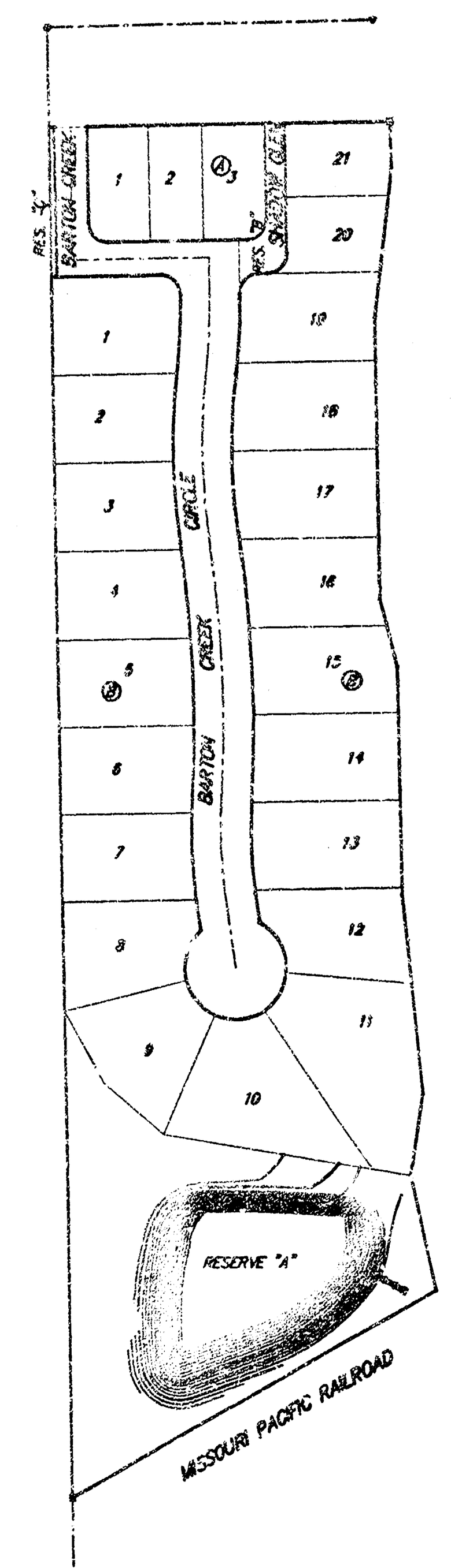
4. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

5. 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.

6. 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 re-established by a licensed land surveyor in accordance with state laws

7. All areas disturbed by construction shall be seeded as indicated on Mass Grading Plan.

8. This project is subject to a current SWPP Plan. Contractor shall comply with any unusual requirements as necessary for site to be in compliance during construction.



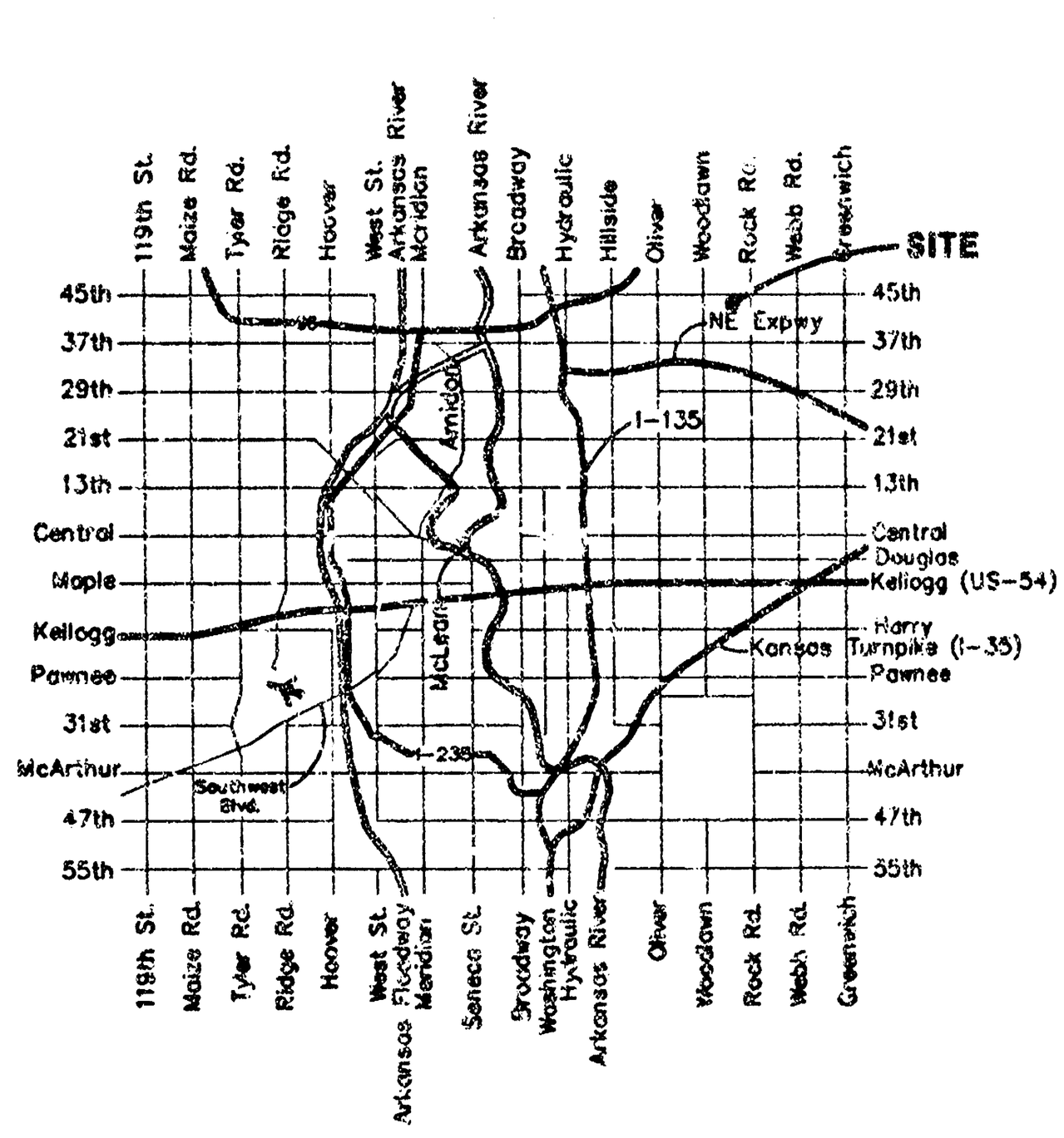
Scale: 1" = 150'

Benchmark

BM #2: "□" Cut on top of curb, 30± N of the NE corner of Barton Creek, Willowbend North Estates 2nd Addition. Elev. = 191.31 City Datum

BM #1: "□" Cut on top of curb at the E end of the NE curb return, Castle Pines St. & Barton Creek. Elev. = 195.79 City Datum

Sheet Index



Vicinity Map

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA

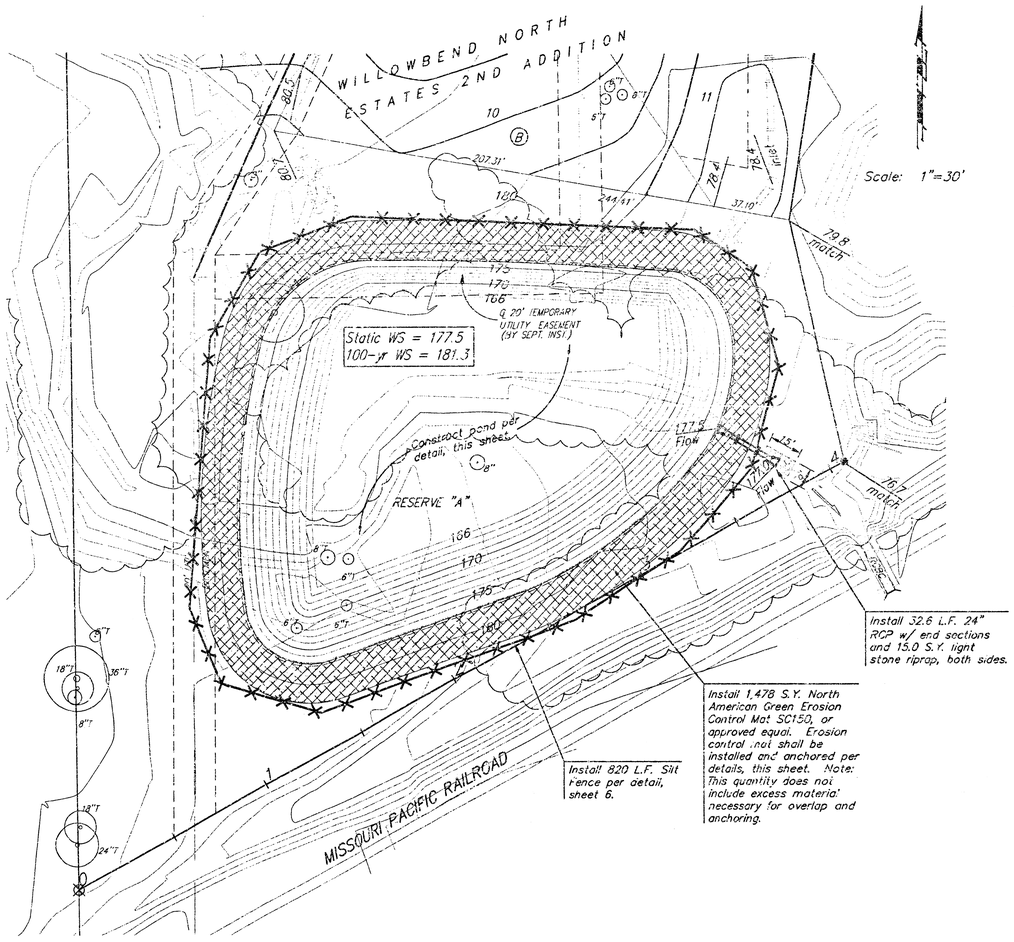
Sanitary Sewers ____
Storm Sewers VRH 8/5/03
Driveway Approaches ____
Water Mains ____
Paving ____

NOTE TO CONTRACTORS

Installation, inspection and testing for this project is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said Inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Licensed Professional Engineer. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection nor shall any work be commenced without written authorization by the City Engineer. All Construction and Materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

July 2003

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



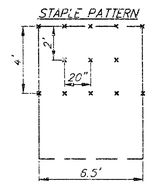
STAPLE PATTERN "D"

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.

STAPLE PATTERN

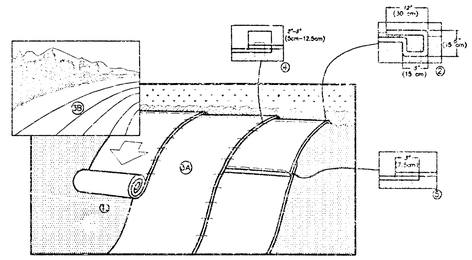


EARTH WORK TOTALS		
	C.Y. Excavation	C.Y. Fill
Mass Grading	2,195	16,645
Pond Construction	13,881	0
Total	16,076	16,645

Earthwork quantities are for reference only. All cost associated with mass grading shall be incidental to lump sum bid item "Mass Grading".

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 FILL 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 COT 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.

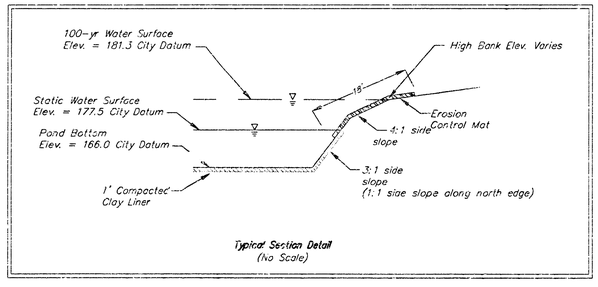
NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

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 as shown on this page, out of easements and R/W. Area will be staked by Engineer. Additional area will be staked out if needed.
3. All of Reserve "A" 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)--3#/1000 Sq. Ft. and Kansas Premium Fescue Blend; 3#/1000 Sq. Ft.
   FERTILIZER -- 10-20-10 Ratio or 12-24-12 Ratio at 350 Lbs./Ac.
   MULCH -- 2 Tons Prairie Hay / Acre
4. Install Erosion Control Mat from 1' below the water surface to 18' up the bank.
5. Baughman Company will provide staking information at the time of construction.
6. Contractor to strip top 3" of soil before mass grading and stockpile. Top soil stockpile to be redistributed over Reserve "A" above water surface.
7. Compaction of 95% shall be obtained in all right-of-ways, 90% in all other fill areas.



Typical Section Detail
(No Scale)

(184) Existing Grade

184 Proposed Grade

Silt Fence

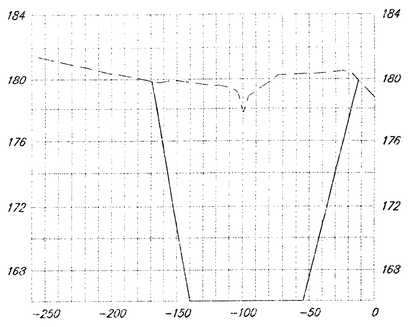
WILLOWBEND NORTH ESTATES 2ND ADDITION
POND PLAN
WICHITA, KANSAS

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

PROJECT NUMBER				SHEET 2 OF 7
DESIGN NRW	DRAWN TMS	APPROVED	DATE 2/03	SCALE Noted

Willowbend/Pond 02-07-E631

3+00



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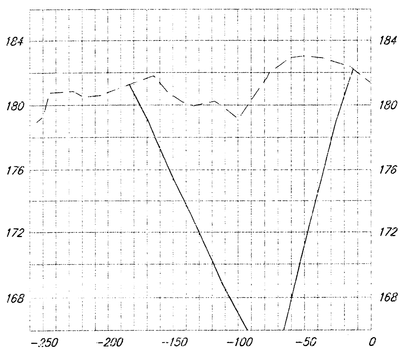

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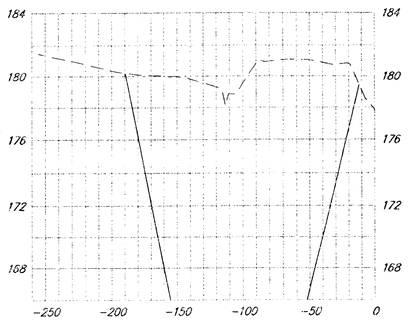

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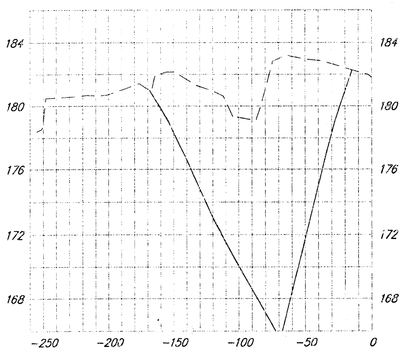

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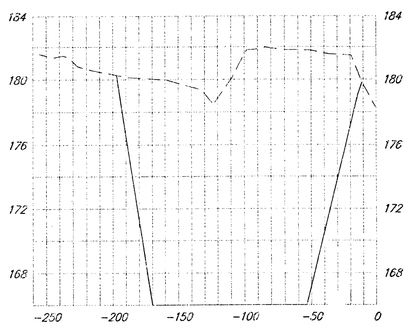

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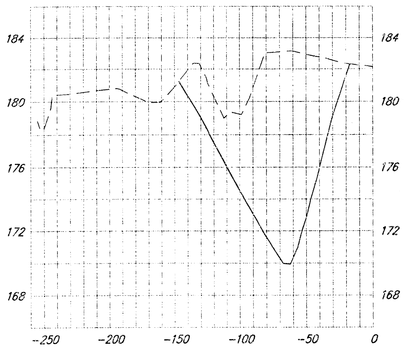

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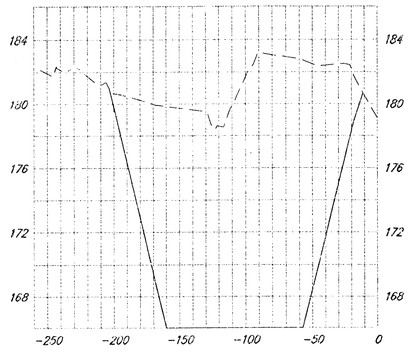

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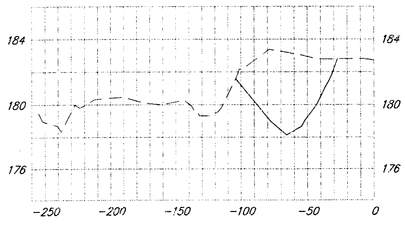
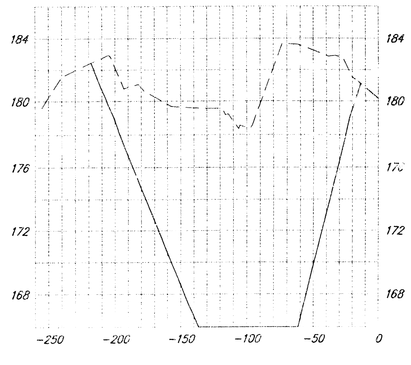


2+00



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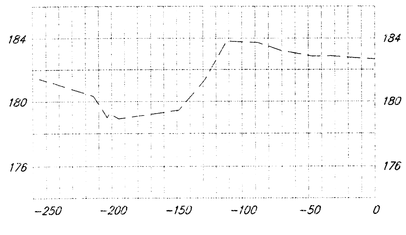

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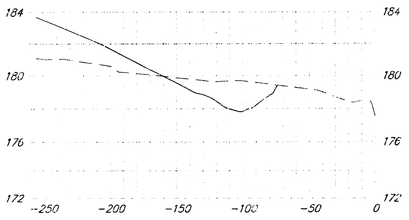
PROJECT NUMBER

REV.

SHEET
3/7

4+00



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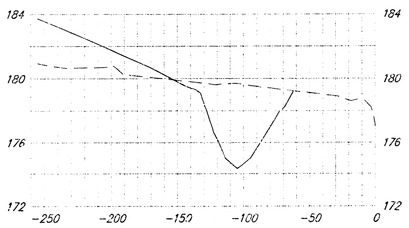

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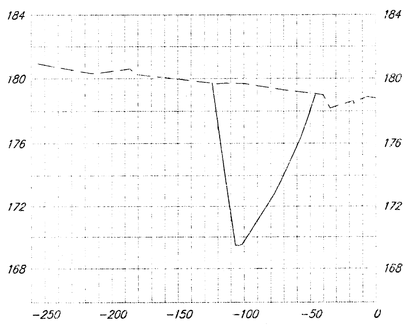

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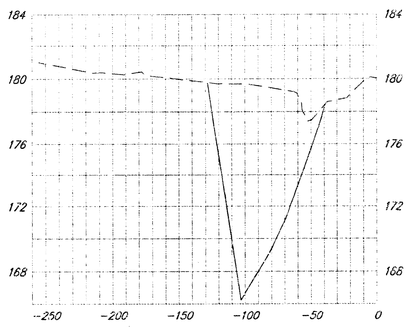

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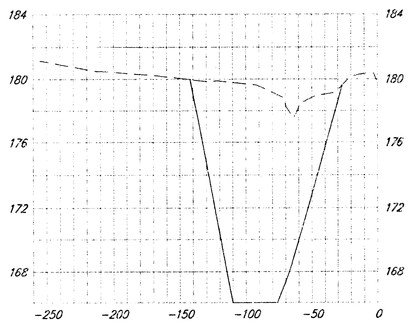

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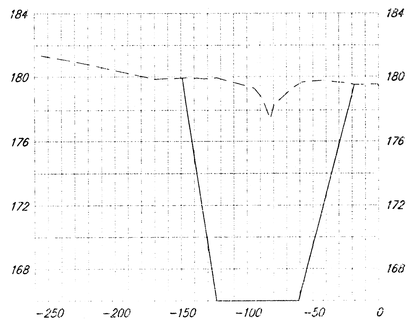
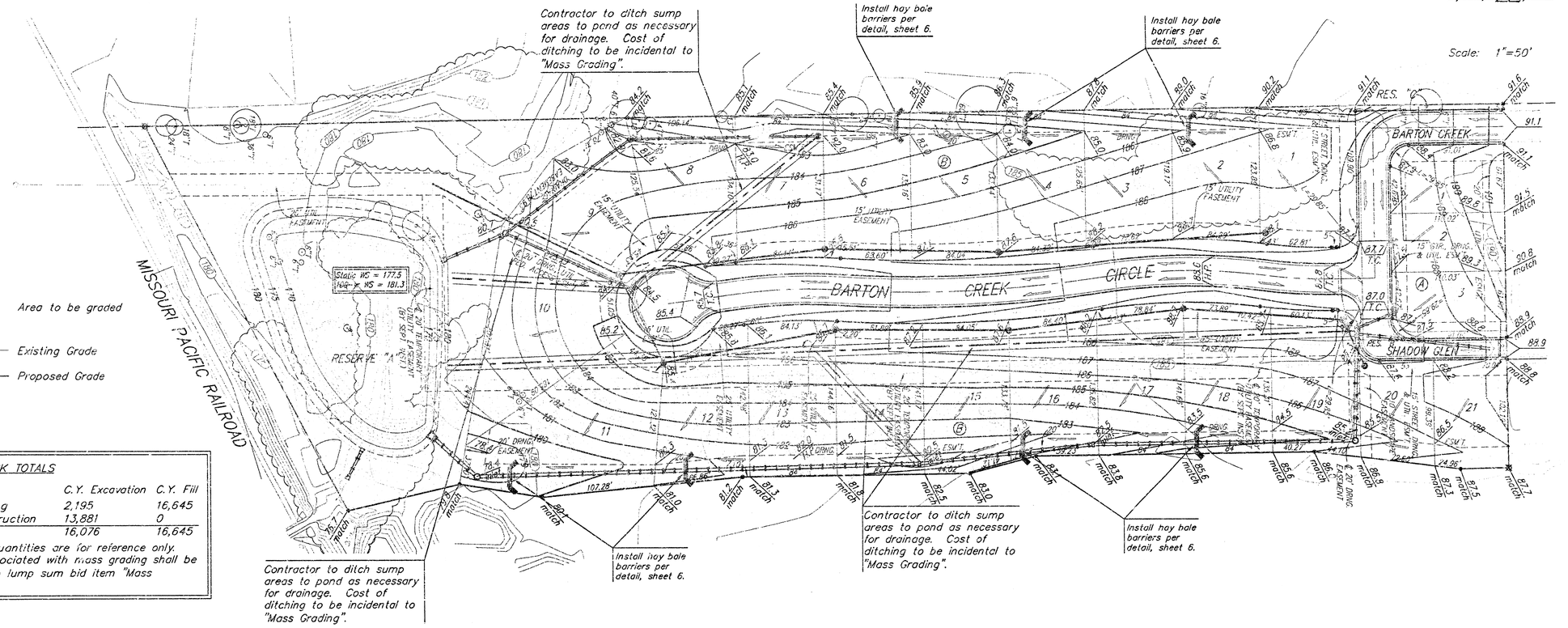


BAUGHMAN COMPANY P. A.
ENGINEERING & SURVEYING
316/262-2779 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER

SHEET 4/7

REV



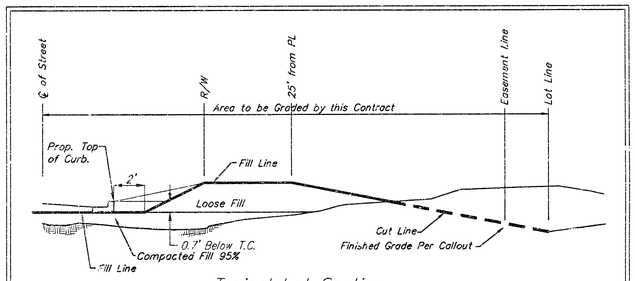
EARTH WORK TOTALS		
	C.Y. Excavation	C.Y. Fill
Mass Grading	2,195	16,645
Pond Construction	13,881	0
Total	16,076	16,645

Earthwork quantities are for reference only. All cost associated with mass grading shall be incidental to lump sum bid item "Mass Grading".

NOTES:

1. Any excess excavation shall be stored as indicated by Engineer, out of easements and R/W. Area will be staked by Engineer. Additional area will be staked out if needed.
2. All of Reserve "A" 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)--3#/1000 Sq. Ft. and Kansas Premium Fescue Blend; 3#/1000 Sq. Ft.
   FERTILIZER -- 10-20-10 Ratio or 12-24-12 Ratio at 350 Lbs./Ac.
   MULCH -- 2 Tons Prairie Hay / Acre
3. Baughman Company will provide staking information at the time of construction.
4. Contractor to strip top 3" of soil before mass grading and stockpile. Top soil stockpile to be redistributed over Reserve "A" above water surface.
5. Compaction of 95% shall be obtained in all right-of-ways, 90% in other fill areas.
6. Contractor to complete street R/W grading per plan. Any earthwork deficiency shall be contained within the lots.



Typical Lot Section
No Scale

Remove trees only as necessary for mass grading. Cost of removal to be incidental to lump sum bid item "Site Clearing & Restoration".

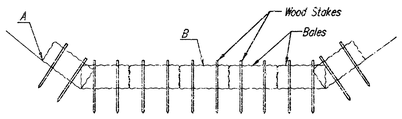
WILLOWBEND NORTH ESTATES 2ND ADDITION
MASS GRADING PLAN
WICHITA, KANSAS

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

PROJECT NUMBER				SHEET 5 OF 7
DESIGN NEW	DRAWN TMS	APPROVED	DATE 07/03	SCALE 1"=50'

Willowbend/Mass 03-07-E631

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



STRAW BALE DITCH CHECKS

Material Specification:

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

Placement:

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

Ditch Check Spacing

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

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench-it will be used later.
Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The 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".

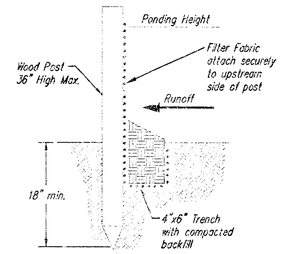
List of common placement/installation mistakes to avoid:

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

List of common placement/installation mistakes to avoid:

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

Inspection and Maintenance:

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

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

* FOR INFORMATION ONLY

1,478 S.Y. EROSION CONTROL MAT
820 L.F. SILT FENCE
7 EA. STRAW BALE DITCH CHECKS

* 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
-

DATE
JUL 2003

WILLOWBEND NORTH ESTATES 2ND ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS

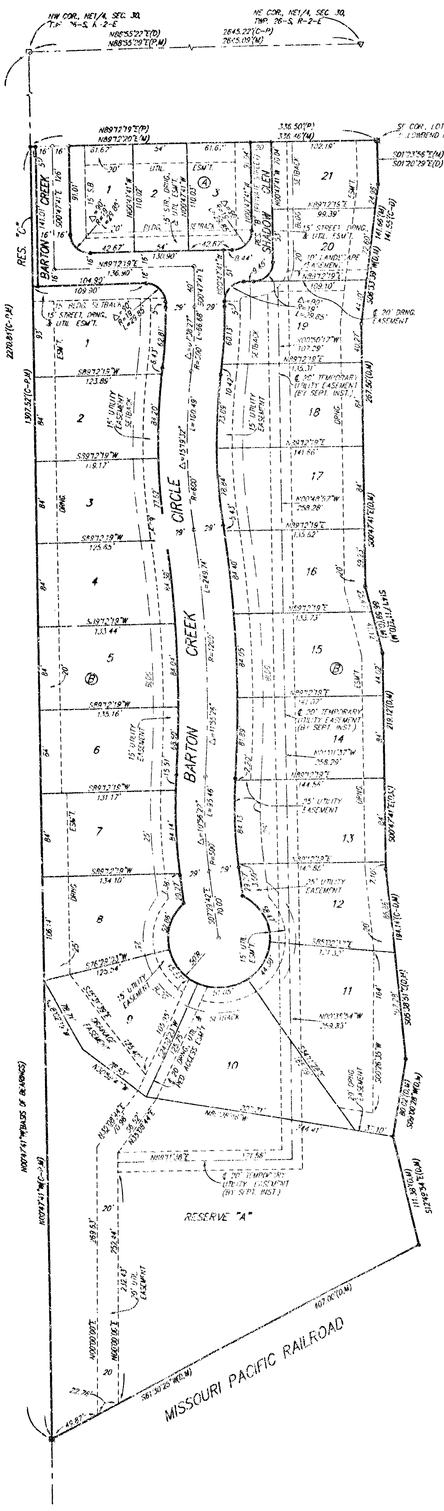
Sht 7 of 7 Sheets

04 05 11

● = #4 REBAR W/ "BAUGHMAN" CAP (SET)
□ = #5 REBAR W/ "AMES" CAP (FOUND)
■ = #4 REBAR W/ YELLOW CAP (FOUND) (I.D. NOT LEGIBLE)
▽ = 3/4" IRON W/ "SECTION CORNER" METAL CAP (FOUND).

(M) = MEASURED
(P) = PLATTED
(D) = DESCRIBED
(C-P) = CALCULATED PER PLATTED INFO.
(C-D) = CALCULATED PER DESCRIBED INFO.

0 60 120


NW COR., NE1/4, SEC. 30, T.26S., R.2E.
NE COR., NE1/4, SEC. 30, TWP. 26-S, R-2-E
2645.27'(C-P)
2645.09'(M)
N88°55'22"E(M)
N89°27'29"E(M)
336.50'(P)
336.40'(M)
S1° COR., LOT 11, BLOCK 7, LOMBEND NORTH ADD.
S01°26'29"E(M) 45.25'(M)
S01°26'29"E(D) 45.26'(C-D)
RES. "C"
BARTON CREEK
CIRCLE
RESERVE "A"
MISSOURI PACIFIC RAILROAD
N07°06'(D&M)
S81°30'25"E(M&D)
2278.81'(C-P)
1897.55'(C-P)
2815.61'(M)
2814.72'(M)
N89°27'29"E(M)
S89°27'29"W
N00°32'31"W
S00°32'31"E
N89°27'29"E