

EARTHWORK SUMMARY

EARTHWORK CALCULATION	
EXCAVATION	10,500 C.Y.
COMPACTED FILL (95% DENSITY)	2,000 C.Y.

NOTE: 20% HAS BEEN ADDED TO FILL QUANTITIES TO ALLOW FOR COMPACTION AND HANDLING.

GENERAL NOTES

- ALL CONCRETE SHALL BE STANDARD PAVING MIX UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING 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.
- TREES TO BE REMOVED ARE MARKED WITH AN 'X' OR WITH A HATCH PATTERN AS SHOWN ON PLANS. ALL TREES WHICH IN THE OPINION OF THE FIELD ENGINEER CAN BE SAVED, SHALL BE SAVED.
- EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS COMPANIES AND IS EITHER FROM COMPANY UTILITY DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.
- CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT (48) HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE-CALL	1-800-344-7233
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THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

COX COMMUNICATIONS (CABLE)	262-0661
WESTAR (ELECTRIC)	261-6512
KANSAS GAS SERVICE (GAS)	832-3101
SBC (TELEPHONE)	800-870-8390
CITY OF WICHITA WATER & SEWER	262-6000
AQUILA (GAS)	946-0096
- UNLESS SHOWN OR STATED OTHERWISE ON THESE DRAWINGS, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF WICHITA SPECIFICATIONS.
- RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN, WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

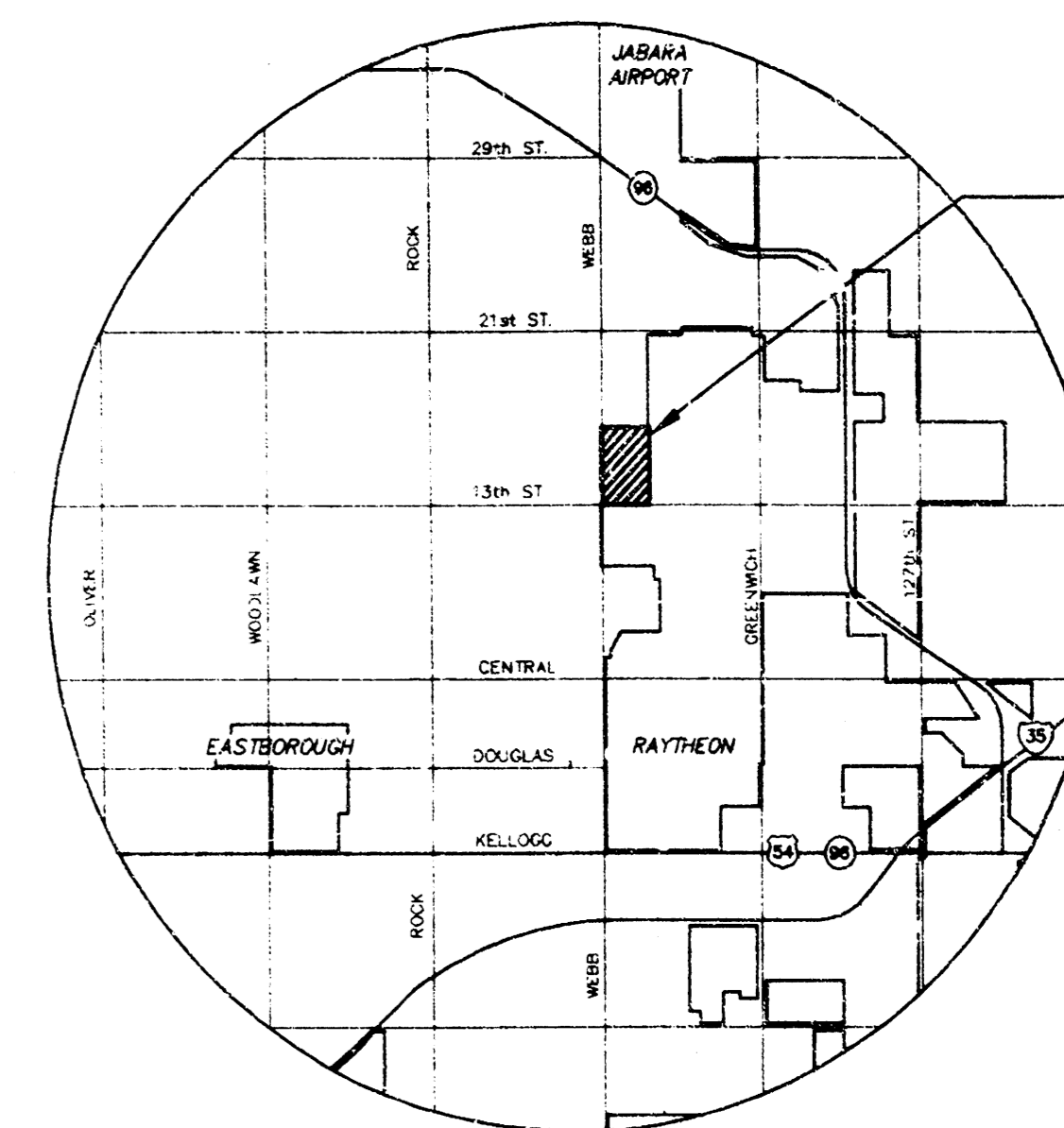
GENERAL GRADING NOTES

- THIS IS DESIGN GRADING. ALL GRADES SHALL BE CONTOURED SMOOTHLY WITH GENTLE ROUNDING/SHAPING OF ALL AFFECTED LAND SURFACES. ABRUPT TRANSITIONS AT THE TOP OF SLOPES WHERE PROPOSED GRADES MEET EXISTING ARE NOT ACCEPTABLE. SURVEY STAKES FOR POND GRADING ARE FOR GENERAL GRADING PURPOSES ONLY. NOT ALL SLOPES ARE CONSTANT AND THEREFORE THE GRADING PLANS SHALL BE REFERRED TO FOR FINAL GRADE SHAPING. THE GRADING SHALL BE APPROVED BY MKEC'S LANDSCAPE ARCHITECT PRIOR TO THE ADDITION OF THE TOPSOIL LAYER.
- A 6" LAYER OF TOPSOIL SHALL BE STRIPPED IN AREAS OF CUT AND FILL. IN CASES WHERE GRADING IS DIRECTED UNDER TREE DRIP LINES NO TOPSOIL STRIPPING SHALL BE PERFORMED WITHIN THESE AREAS.
- TOPSOIL SHALL BE REPLACED AT A DEPTH OF 12" IN ALL DISTURBED AREAS (EXCEPT GRADES BELOW THE PROPOSED NORMAL POOL ELEVATION WITHIN PONDS); THE FINISHED GRADE INDICATES THE SURFACE ELEVATION AFTER THE LAYER OF TOPSOIL HAS BEEN PLACED.
- AS THE PROJECT NEARS COMPLETION, THE CONTRACTOR SHALL RIP (SCARIFY) ALL HAUL ROADS WITH AN AGRICULTURAL IMPLEMENT INTENDED FOR SUCH PURPOSES TO A DEPTH OF 18". MULTIPLE PASSES MAY BE NECESSARY TO THOROUGHLY ALLEViate COMPACTION.
- WHERE OFFSITE TOPSOIL IS NEEDED, IT SHALL BE FERTILE NATURAL TOPSOIL, TYPICAL OF THE LOCALITY, OBTAINED FROM WELL DRAINED AREAS. STOCKPILED TOPSOIL MAY BE USED. IT SHALL BE WITHOUT ADMIXTURE OF SUBSOIL OR SLAG AND SHALL BE FREE OF STONES, LUMPS, STICKS, PLANTS OR THEIR ROOTS, TOXIC SUBSTANCES OR OTHER EXTRANEIOUS MATTER THAT MAY BE HARMFUL TO PLANT GROWTH OR WOULD INTERFERE WITH FUTURE MAINTENANCE. TOPSOIL pH RANGE SHALL BE 5.5 TO 7.0. TOPSOIL SHALL BE APPROVED BY MKEC'S LANDSCAPE ARCHITECT PRIOR TO PLACEMENT.
- CLAY LINER SHALL BE SUBSIDIARY TO THE BID ITEM "COMPACTED FILL".
- ALL EXCESS EXCAVATION SHALL BE REMOVED FROM SITE.

POND EXPANSION AND SHORELINE PROTECTION WATERFRONT ADDITION

**SWD #250
PROJECT NO 468-83950
OCA 751394**

**CITY OF WICHITA, KANSAS
JIM ARMOUR, CITY ENGINEER**



LOCATION MAP

BENCHMARKS

- BM#1 SQUARE CUT SE. CORNER HEADWALL 44' N. AND 42' E. OF W. 1/4 COR., SEC. 9, T27S, R2E. ELEV. = 192.73' (CITY DATUM) 1380.13' NGVD
- BM#2 SQUARE CUT SW. CORNER SIGNAL LIGHT POLE BASE NE. CORNER WEBB AND 13TH. ELEV. = 185.945' (CITY DATUM) 1373.345' NGVD
- BM#3 "X" CUT ON T.C. AT THE S.E. COR. OF LOT 2, BLK 2. ELEV. = 1376.72' (CITY DATUM) 189.32' NGVD
- BM#4 BRASS DISC AT T.C. ON THE SOUTH SIDE OF WATERFRONT PARKWAY AT THE SECOND INLET EAST OF THE BRIDGE. ELEV. = 1375.01 (187.61 C.O.W.)

SCALE: 1" = 200'

LEGEND

• IRON

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GRADING & SHORELINE PROTECTION PLAN
3	SHORELINE PROTECTION DETAILS
4	GABION MATTRESS & TOEWALL DETAILS
5	GABION MATTRESS ELEVATION
6	EROSION CONTROL PLAN
7-10	BMP DETAILS
11	FINAL PLAT

NW. Cor., SW. 1/4, Sec. 9, T27S, R2E, 6th P.M.
Fnd. 3/4" pipe in thimble

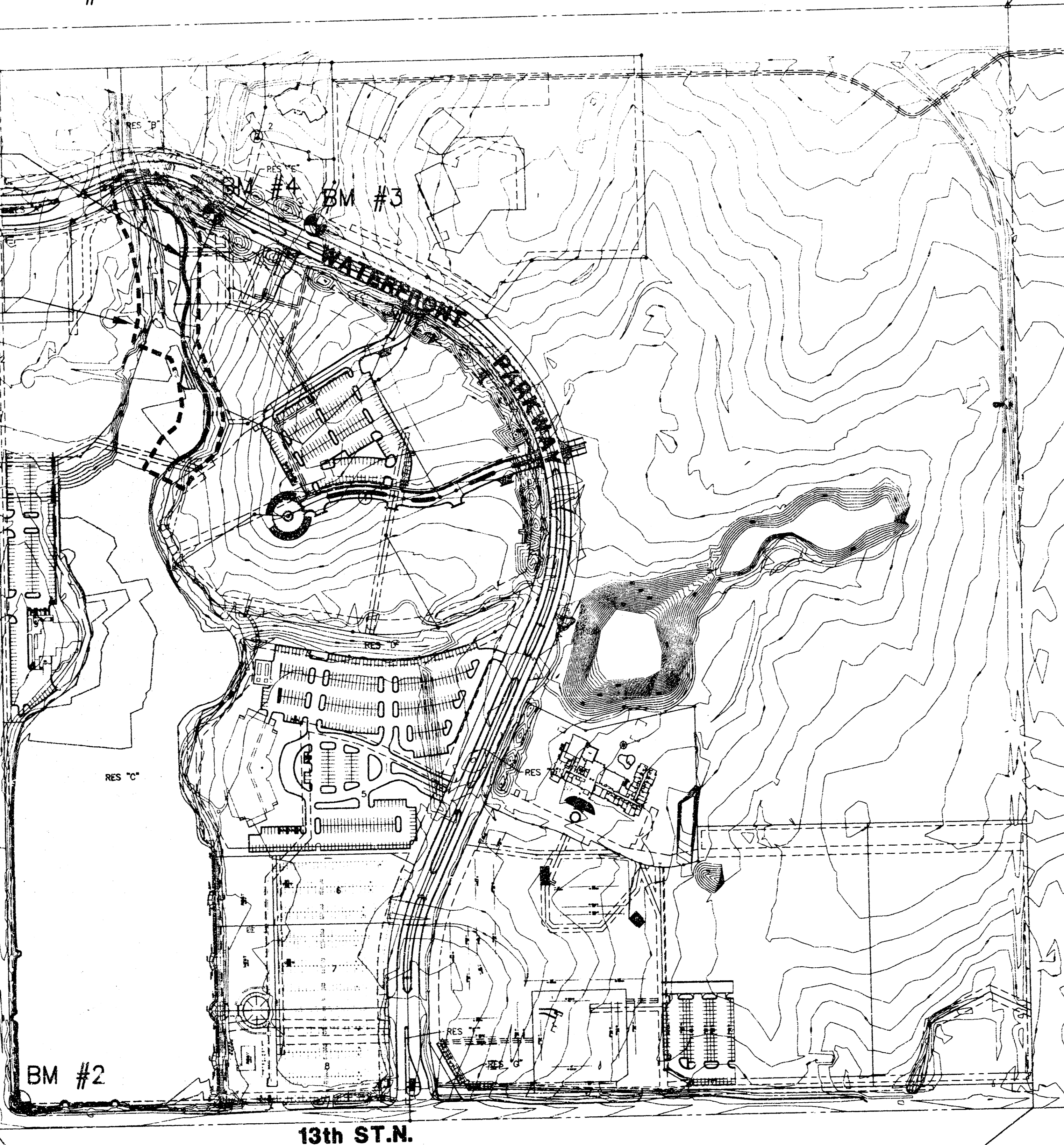
BM #1

NE. Cor., SW. 1/4, Sec. 9, T27W, R2E, 6th P.M.
Fnd. 1/2" pipe

SHORELINE PROTECTION WALL

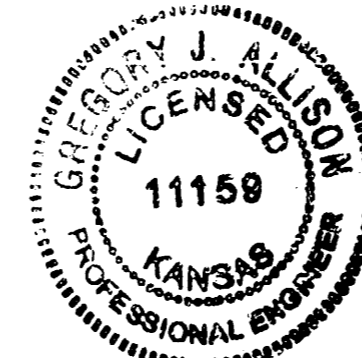
PROJECT AREA

N. WEBB RD.

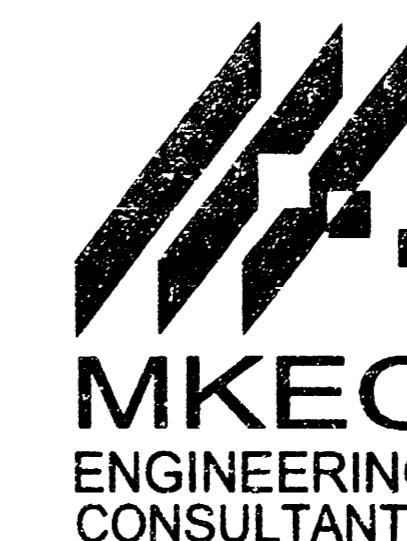


SW. Cor., SW. 1/4, Sec. 9, T27S, R2E, 6th P.M.
Fnd. chiseled "X"

SE. Cor., SW. 1/4, Sec. 9, T27S, R2E, 6th P.M.
Fnd. 3/4" bar w/ Garber id. cap



H:\CIVIL\02014\DWG\Lakes\Seawall\North Seawall\SW_TITLE.dwg 08/04/2005 02:46:31 PM CST

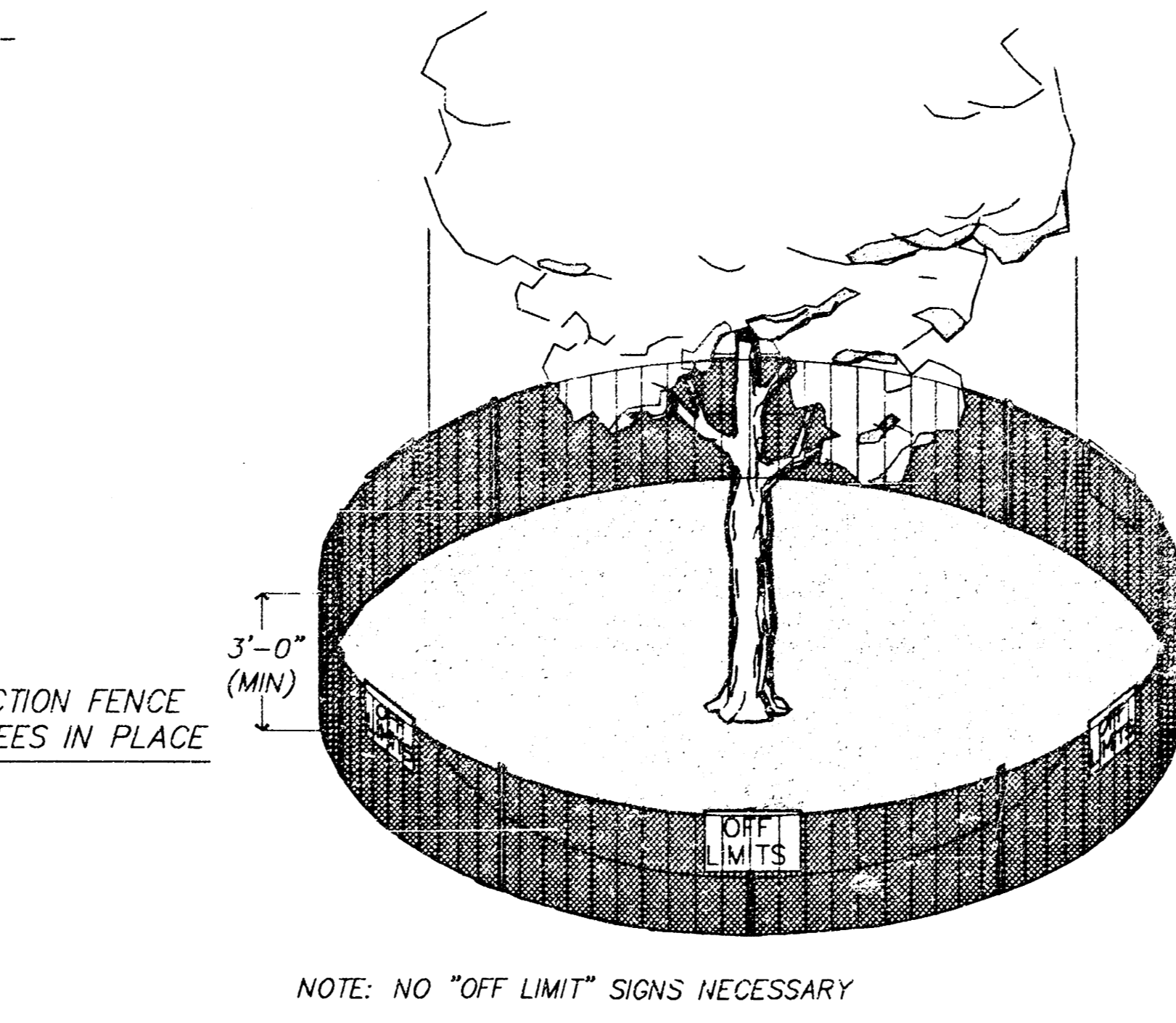
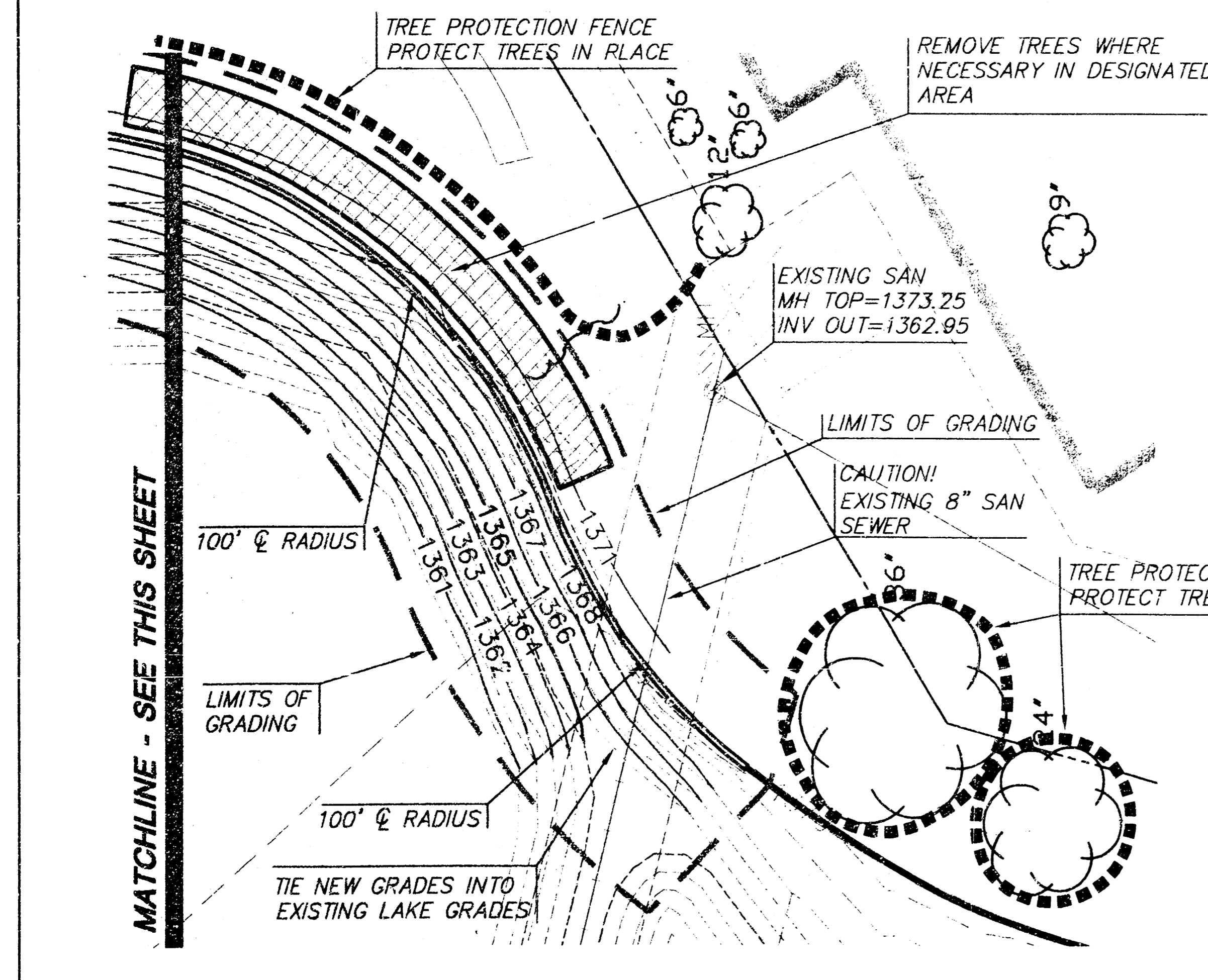
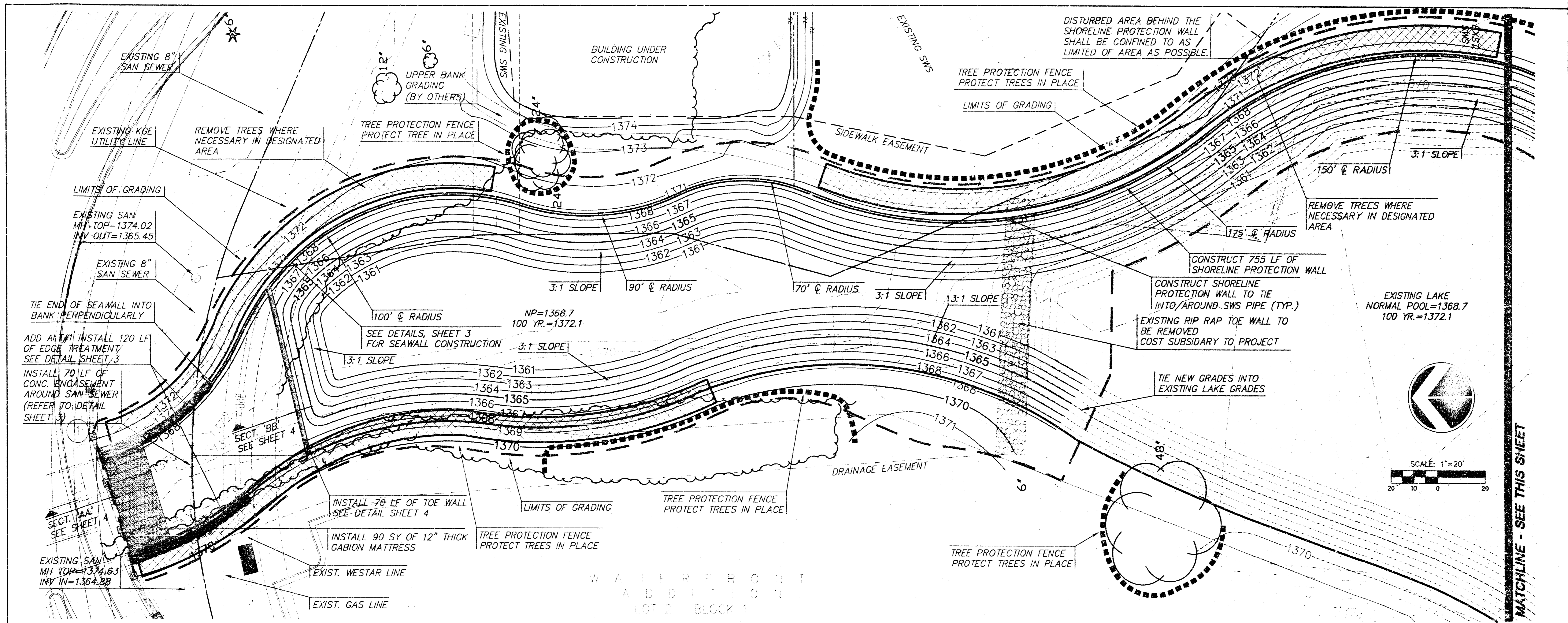


**WATERFRONT ADDITION
POND EXPANSION & SHORELINE PROTECTION**

TITLE SHEET

DESIGN BY: DBG DRAWN BY: JAG CHECKED BY: JAG
DATE: AUGUST 2005 DRAWING NAME: SW_TITLE SHEET / OF: 1 / 1

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



TEMPORARY TREE PROTECTION DETAIL
NOT TO SCALE

GENERAL TREE PROTECTION NOTES:

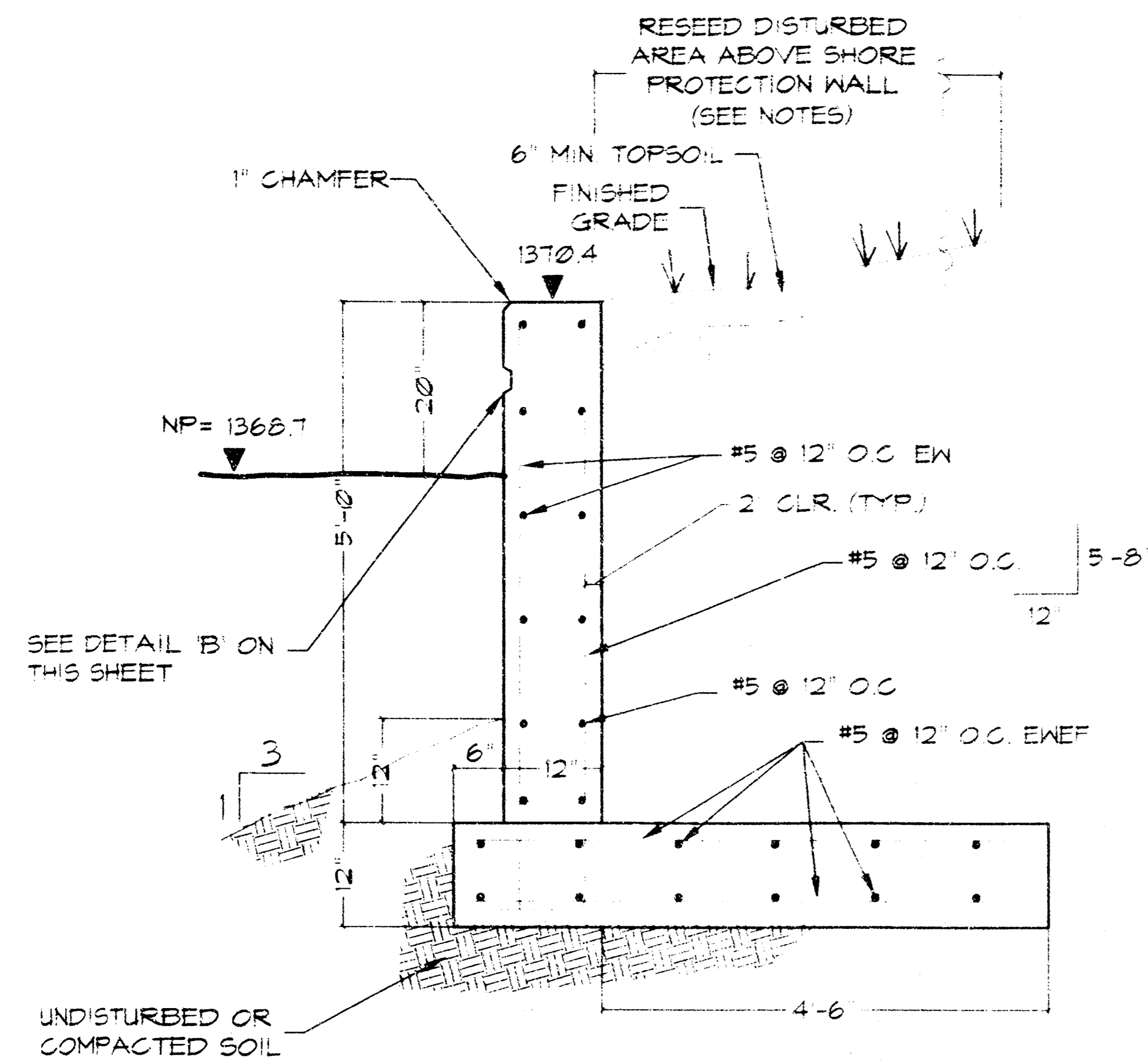
1. TREES ARE AN IMPORTANT ASSET TO THE DEVELOPER. EVERY EFFORT SHOULD BE MADE TO PRESERVE EACH AND EVERY TREE (UNLESS NOTED FOR REMOVAL) AS DIRECTED IN THESE PLANS & NOTES.
2. BEFORE ANY TYPE OF CONSTRUCTION BEGINS WITHIN THE PROJECT IMPROVEMENT AREA THE CONTRACTOR SHALL INSTALL PROTECTION FENCE AROUND ALL TREE MASSES & INDIVIDUAL TREES THAT ARE NOT NOTED FOR REMOVAL.
3. EQUIPMENT AND CONSTRUCTION MATERIALS SHALL REMAIN OUT OF AND AWAY FROM TREE DRIPLINES SO AS TO NOT COMPACT THE ROOT ZONE OR DAMAGE THE TREE. CHEMICAL SPILL DAMAGE SHALL BE PREVENTED BY FILLING GAS TANKS, CLEANING TOOLS & REPAIRING EQUIPMENT WELL OUTSIDE TREE PROTECTED ROOT ZONES. MIXING TRUCKS SHALL BE RINSED OUT OFF SITE OR IN AN AGREED TO LOCATION ON SITE THAT IS REMOVED, HAULED OFF AND CLEANED UP AT THE COMPLETION OF THE PROJECT. WHERE IT OCCURS THAT A CONSTRUCTION ROUTE OR A PROPOSED IMPROVEMENT OCCURS WITHIN A TREE (PRZ) THAT IS PROTECTED IT MAY BE NECESSARY DEPENDENT UPON THE TYPE OF CONSTRUCTION AND EQUIPMENT USED, TO INSTALL A ROOT PROTECTION BRIDGE OR APPROVED EQUIVALENT, THIS MAY BE DETERMINED IN THE FIELD AT THE DIRECTION OF THE LANDSCAPE ARCHITECT (REFER TO DETAIL THIS SHEET).
4. ANY TREE THAT MUST HAVE BRANCHES REMOVED SHALL BE TRIMMED WITH SHARP INSTRUMENT/TOOL THAT IS INTENDED FOR SUCH OPERATIONS. CONSULT LANDSCAPE ARCHITECT PRIOR TO TRIMMING. KNOCKING BRANCHES OFF WITH A BACKHOE OR OTHER SIMILAR MACHINE IS NOT ACCEPTABLE! REFER TO TREE TRIMMING DETAIL ON SHEET 3 FOR TRIMMING PROCEDURE.

- LEGEND**
- TREE PROTECTION FENCE
 - - - LIMITS OF GRADING
 - ▭ REMOVE TREES IN THESE AREAS IF NECESSARY
 - ▨ GROUTED TOE WALL
 - ▭ EXISTING SANITARY SEWER

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS 67206
316-864-9500

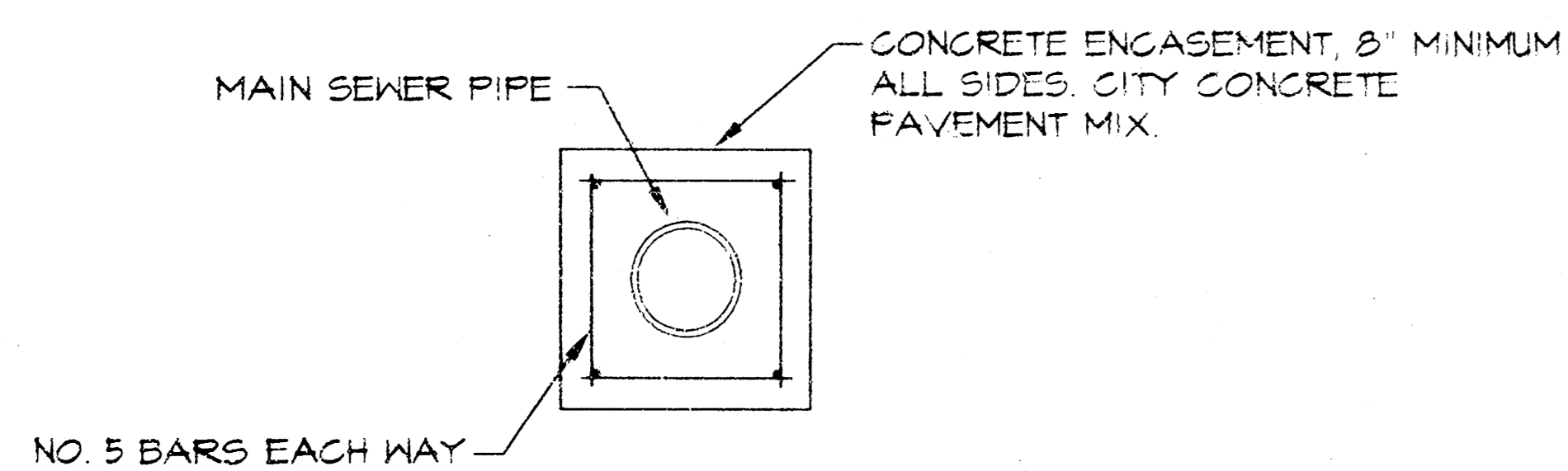
THE WATERFRONT ADDITION
PROJECT NAME
GRADING AND SHORELINE PROTECTION PLAN
SHEET TITLE

DESIGN BY: DBG	DRAWN BY: DBG	CHECKED BY: JAG
DATE: AUGUST 2005	JOB NO.: 02014	SHEET OF: 2 / 11



SHORELINE PROTECTION WALL CONSTRUCTION DETAIL

3/4"=1'-0"

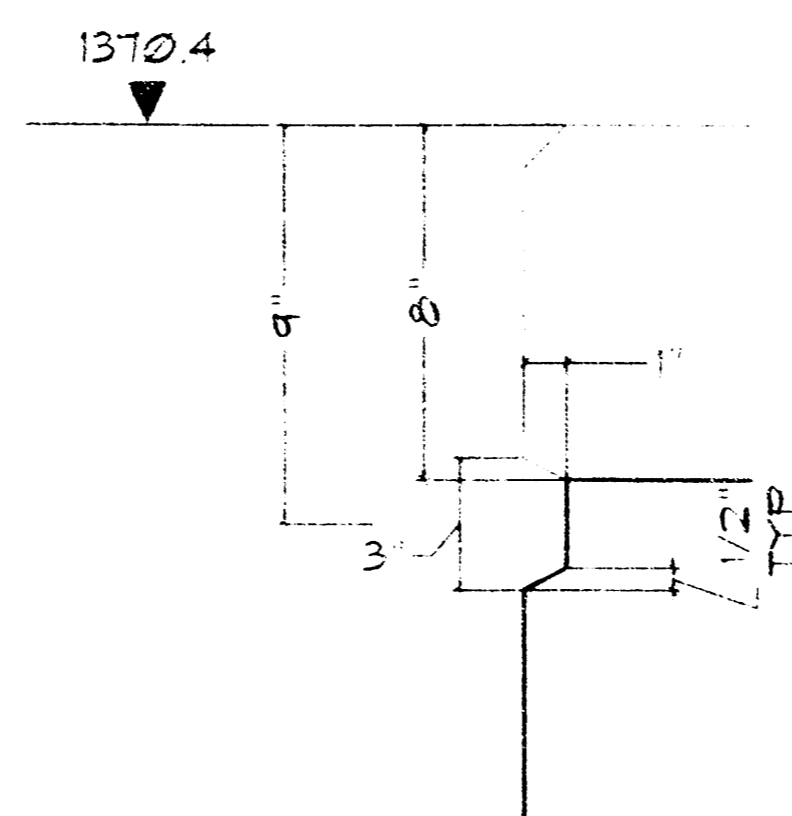


CONCRETE ENCASEMENT DETAIL

NOT TO SCALE

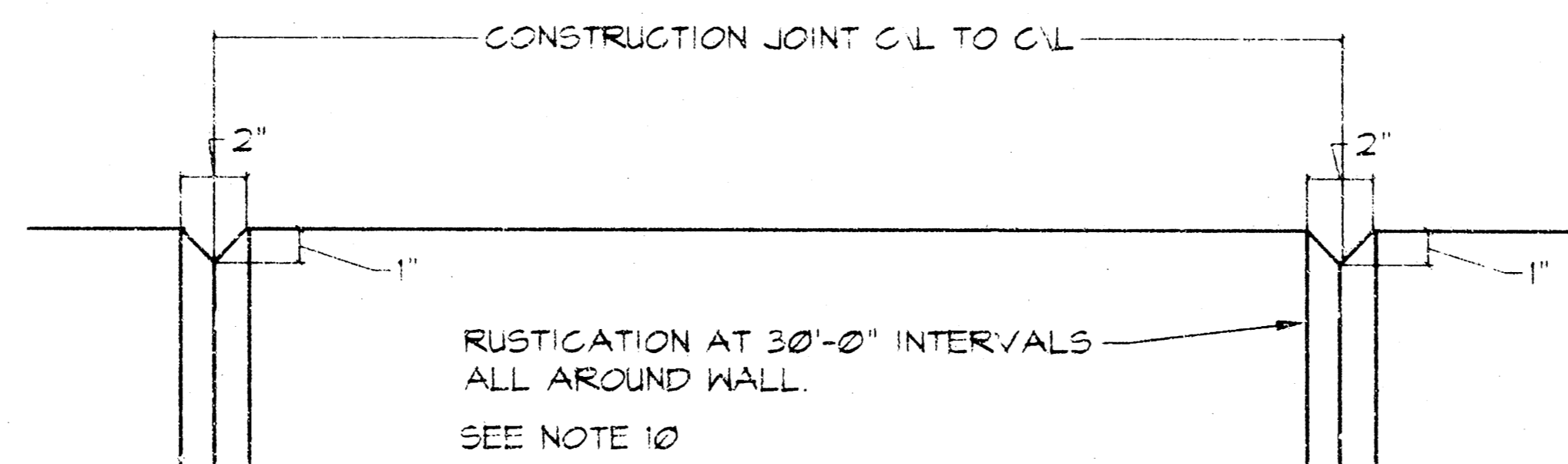
GENERAL NOTES

1. ALL CONCRETE TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.
2. ALL REINFORCING TO MEET ASTM A615, GRADE 60. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL SHALL BE TO CENTERLINE OF REINFORCING UNLESS OTHERWISE NOTED.
3. ALL CONCRETE SHALL CONFORM TO THE CURRENT "ACI MANUAL OF CONCRETE PRACTICE".
4. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE I OR III.
5. ALL AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C33.
6. BEVEL ALL EXPOSED EDGES WITH 1" TRIANGULAR MOLDING.
7. ALL FOOTINGS SHALL BEAR ON UNDISTURBED EARTH OR ENGINEERED FILL AT ELEVATIONS SHOWN ON DETAILS.
8. BACKFILLING OF THE CONCRETE STRUCTURE SHALL COMMENCE FOLLOWING A MINIMUM CURE PERIOD OF SEVEN DAYS. BACKFILLING OF THE STRUCTURE SHALL BE ACCOMPLISHED BY PLACING AND COMPACTING FILL MATERIAL ON EACH SIDE IN EQUAL LIFTS IF APPLICABLE. THE CONTRACTOR SHALL TAKE SPECIAL CARE NOT TO APPLY EXCESSIVE PRESSURE TO EITHER SIDE IN THE BACKFILLING PROCESS. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STD. DENSITY PER CITY OF WICHITA SPECS. THE COST OF BACKFILLING THE STRUCTURE IS SUBSIDIARY TO THE STRUCTURES CONSTRUCTION.
9. ALL EXPOSED CONCRETE SURFACES SHALL RECEIVE LIGHT SANDBLASTED FINISH.
10. CAST WALL IN 30'-0" LENGTHS IN AN ALTERNATING PATTERN AT 7 DAY INTERVALS.
11. GABION MATTRESS SHALL BE PVC COATED.



DETAIL 'B'

NOT TO SCALE

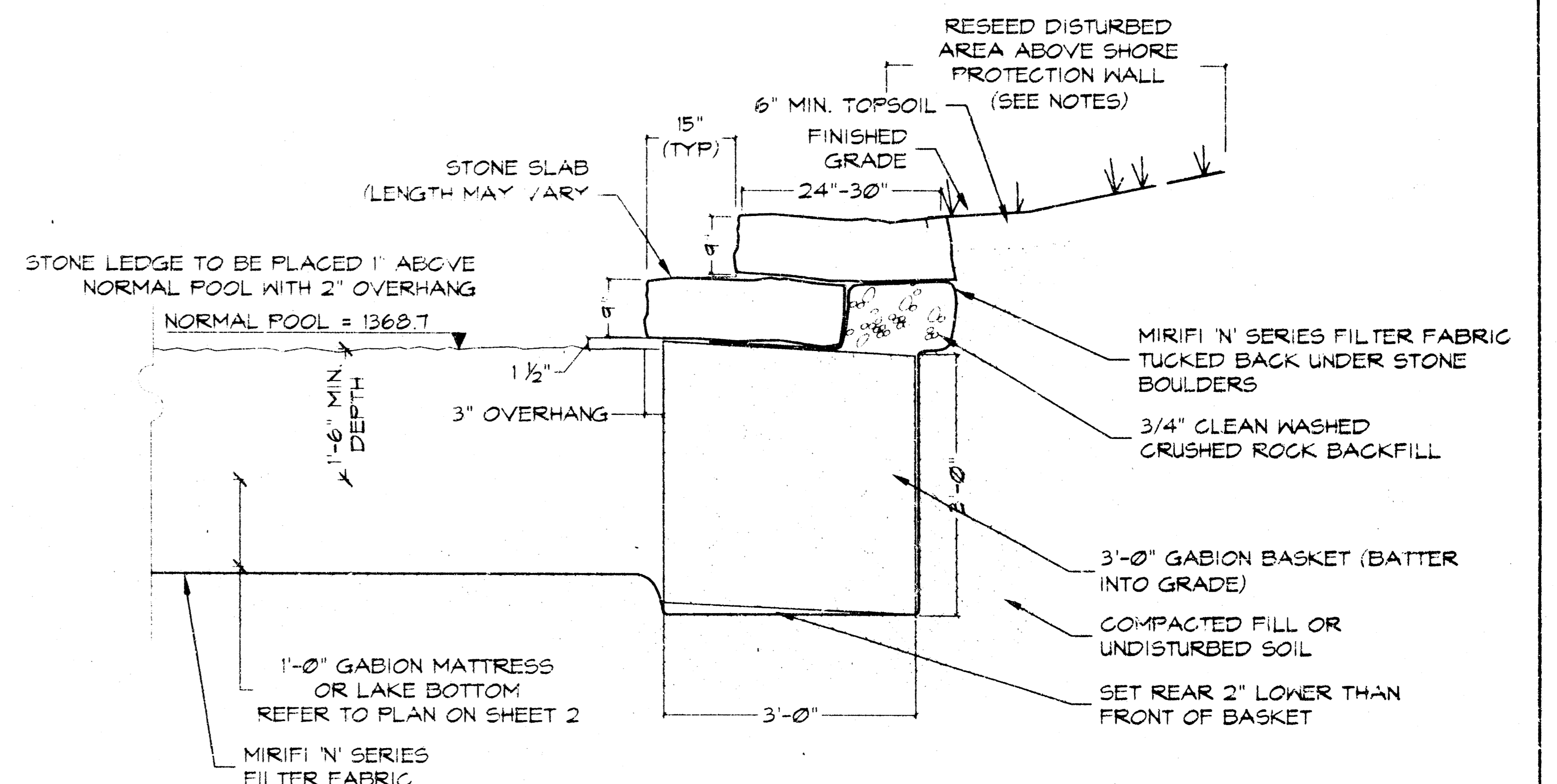


RUSTICATION DETAIL

NOT TO SCALE

LANDSCAPE STONE NOTES:

1. THE STONE SLABS TO BE USED ALONG THE POND EDGE AS INDICATED AND OTHER STONE USED FOR LANDSCAPE TYPE AREAS SHALL BE 'SAN BOIS BLEND' SANDSTONE OBTAINABLE FROM TURKEY CREEK NATURAL STONE, RT. 2, BOX 2020 WISTER, OKLAHOMA 74966.
CONTACT: CHUCK EVANS (918)647-6670
COLOR/TYPE: SAN BOIS BLEND
BED THICKNESS: 7" TO 4"
LENGTH: 24" (MIN.)
DEPTH: 24" (MIN.)
RESERVE LARGER STONES FOR BASE COURSES. COORDINATE PLACEMENT WITH LANDSCAPE ARCHITECT. AN EQUAL STONE OF QUALITY AND PHYSICAL CHARACTERISTICS MAY BE SUBSTITUTED WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT. ALL STONE DELIVERED TO THE SITE IS SUBJECT TO APPROVAL PRIOR TO USE.
2. STONE SLABS SHALL BE CAREFULLY SET IN PLACE TO PROVIDE A NEAT, CLEAN AND ORDERLY APPEARANCE. STONE ENDS SHALL BE BUTTED TOGETHER TIGHTLY. NO GAP SHALL BE LARGER THAN 1" IN WIDTH. SAW CUTS MAY BE MADE TO HELP WITH ANGLE TRANSITIONS HOWEVER THE VISIBLE EDGE/TOP OF THE SAW CUT SHALL BE STRUCK WITH A HAMMER TO COMPLETELY REMOVE THE SHARP EDGE/FACE AND CREATE A NATURAL BREAK APPEARANCE.
3. EXPOSED FACE SHALL BE SPLIT, NOT SAWN. ANY EXPOSED DRILL MARKS SHALL BE SOFTENED WITH CHISEL.
4. TILT ALL STONE SLABS SLIGHTLY INWARD TOWARD THE RETAINED SOIL. FAILURE TO DO SO SHALL RESULT IN RE-CONSTRUCTION OF THE WALL.

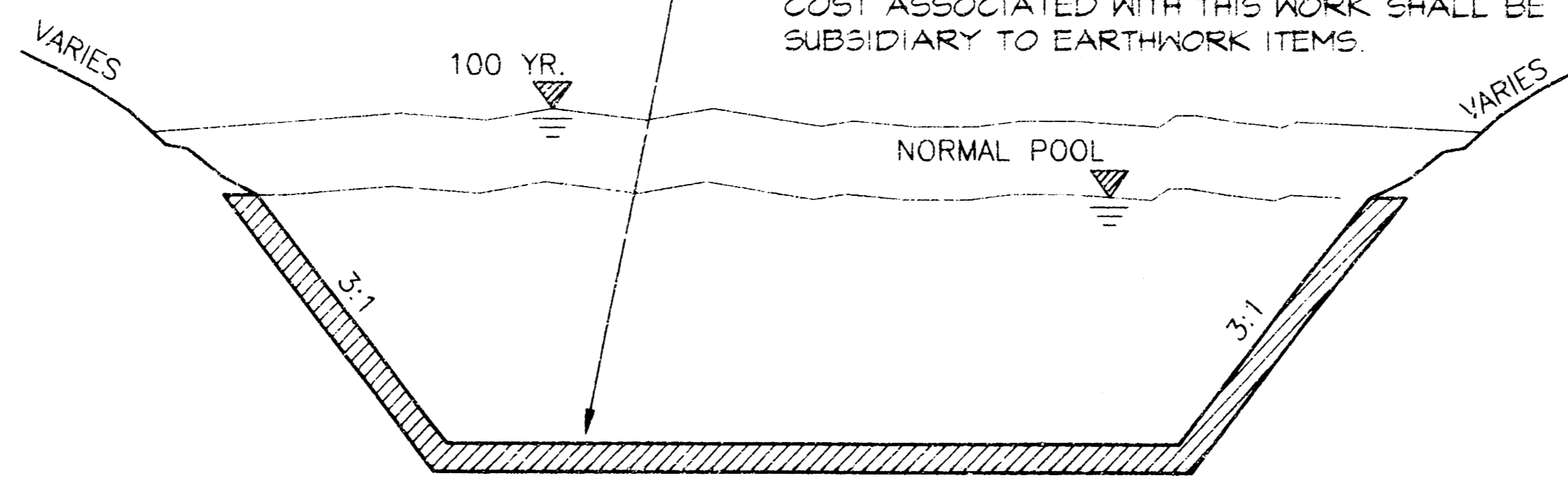


ADD ALTERNATE #1 - STONE EDGE TREATMENT

NOT TO SCALE

NOTE: CONTRACTOR SHALL MAKE EVERY EFFORT TO USE THE CHOICE MATERIAL FOR CLAY LINER. PI-30 IS A MIN.

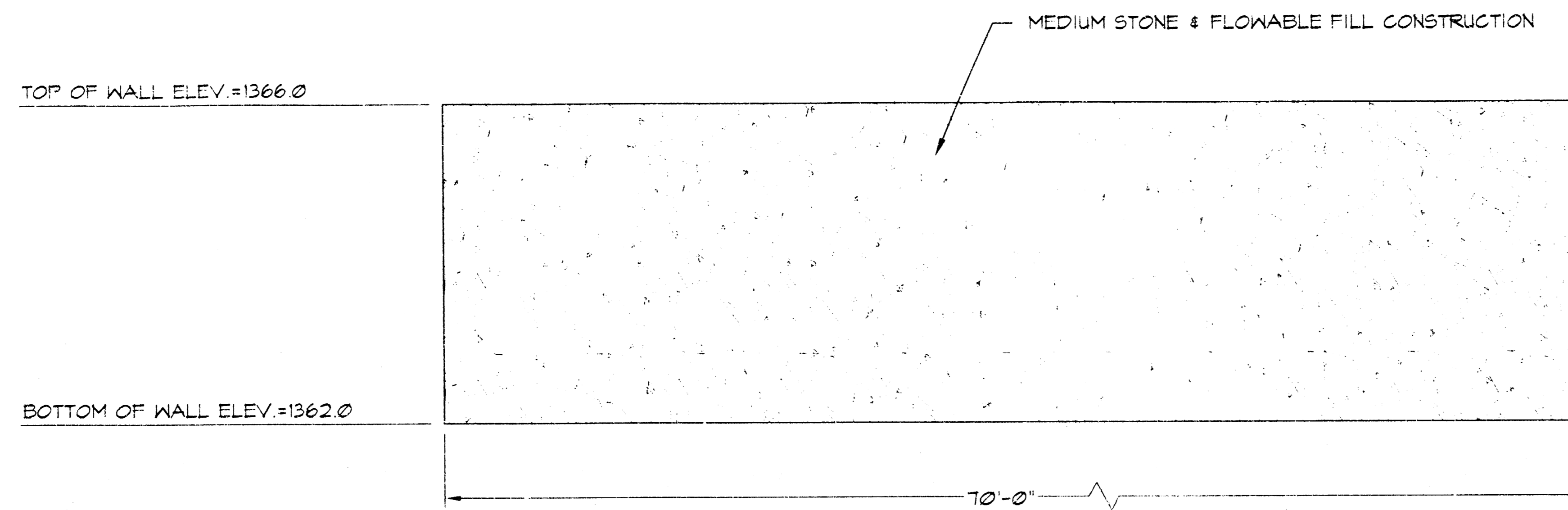
OVER EXCAVATE 12" OF SOIL, PLACE IN TWO 6" LIFTS CLAY LINER (PI-30). COMPACT TO 2% ABOVE OPTIMUM ASTM D698 95% RELATIVE MAX DENSITY. A PERMIABILITY TEST OF THE LINER MATERIAL SHALL BE PERFORMED BY A GEOTECHNICAL SOILS ENGINEER AT A RANDOM LOCATION AS DETERMINED BY THE PROJECT INSPECTOR AND AT THE CONTRACTORS EXPENSE (1 PER POND). THE CLAY LINER MATERIAL SHALL MEET OR EXCEED A PERMIABILITY RATING VALUE OF 10. ALL COST ASSOCIATED WITH THIS WORK SHALL BE SUBSIDIARY TO EARTHWORK ITEMS.



TYPICAL LAKE DETAIL

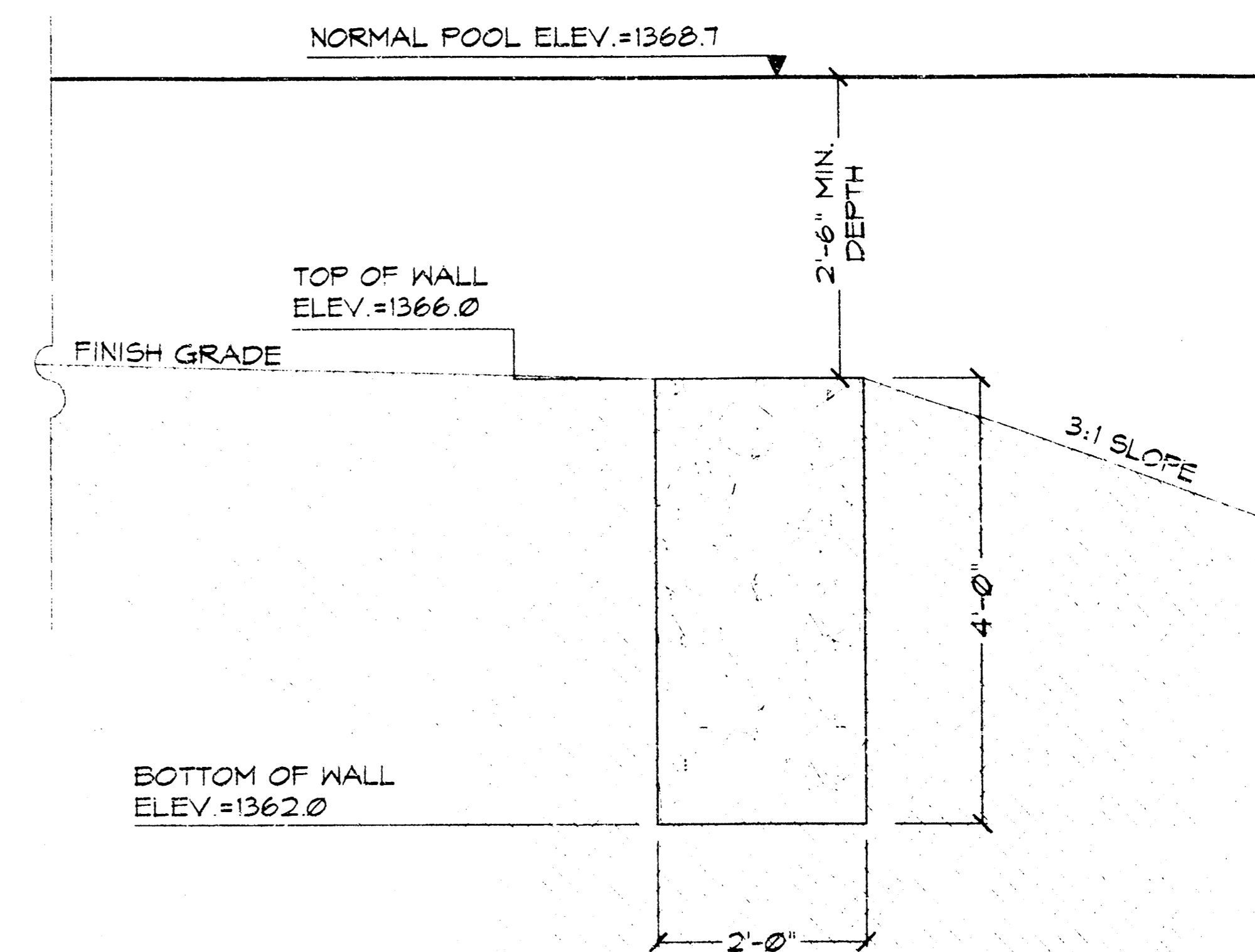
NOT TO SCALE

 MKEC ENGINEERING CONSULTANTS 411 N. WEBB ROAD WICHITA, KS. 67208 316-684-9600	WATERFRONT ADDITION PROJECT NAME		
	SHORELINE PROTECTION DETAILS SHEET TITLE		
	DBG DESIGN BY:	DBG DRAWN BY:	JAG CHECKED BY:
	JULY 2005 DATE	02014 JOB NO.	3 / 11 SHEET/OF



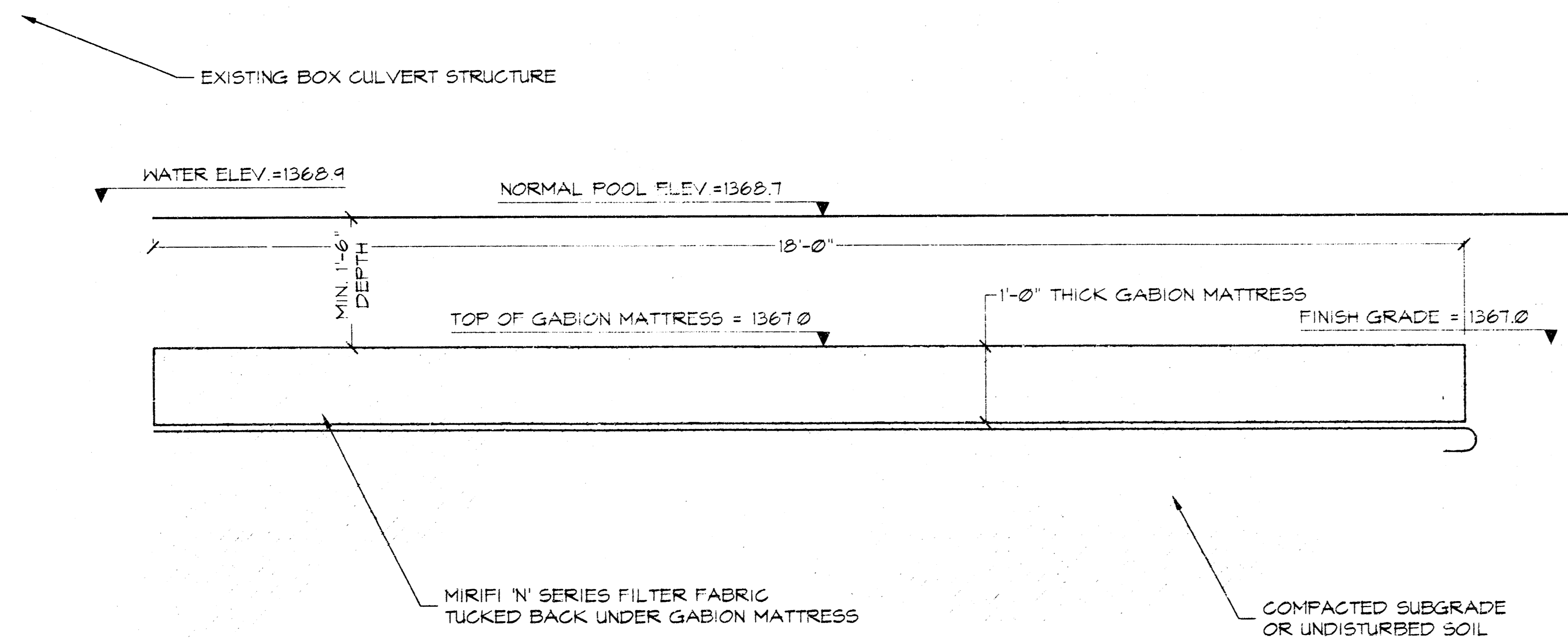
ELEVATION: GROUDED TOE WALL

NOT TO SCALE



SECTION 'B-B': GROUDED TOE WALL

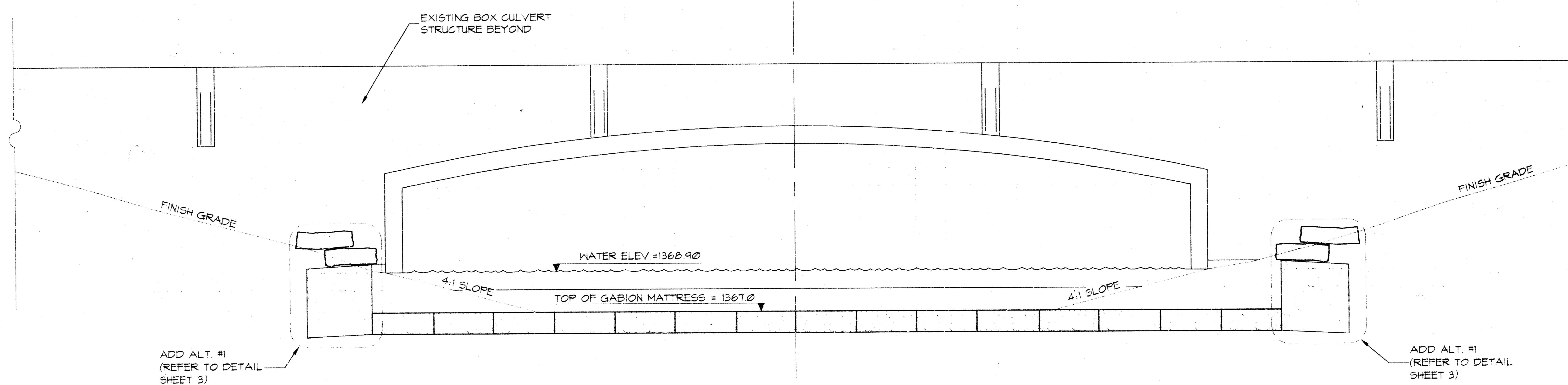
NOT TO SCALE



SECTION 'A-A'

NOT TO SCALE

<p>MKEC ENGINEERING CONSULTANTS 411 N. WEST ROAD WICHITA, KS. 67208 316-684-9600</p>	<p>WATERFRONT ADDITION PROJECT NAME</p>		
	<p>GABION MATTRESS & TOE WALL DETAILS SHEET TITLE</p>		
<p>DBG DESIGN BY:</p>	<p>DBG DRAWN BY:</p>	<p>JAG CHECKED BY:</p>	
<p>JULY 2005 DATE</p>	<p>02014 JOB NO.</p>	<p>4 / 11 SHEET/OF</p>	



ELEVATION: GABION MATTRESS LAYOUT

SCALE 3/16" = 1'-0"



WATERFRONT ADDITION
PROJECT NAME

GABION MATTRESS ELEVATION
SHEET TITLE

DESIGN BY: *DBC*

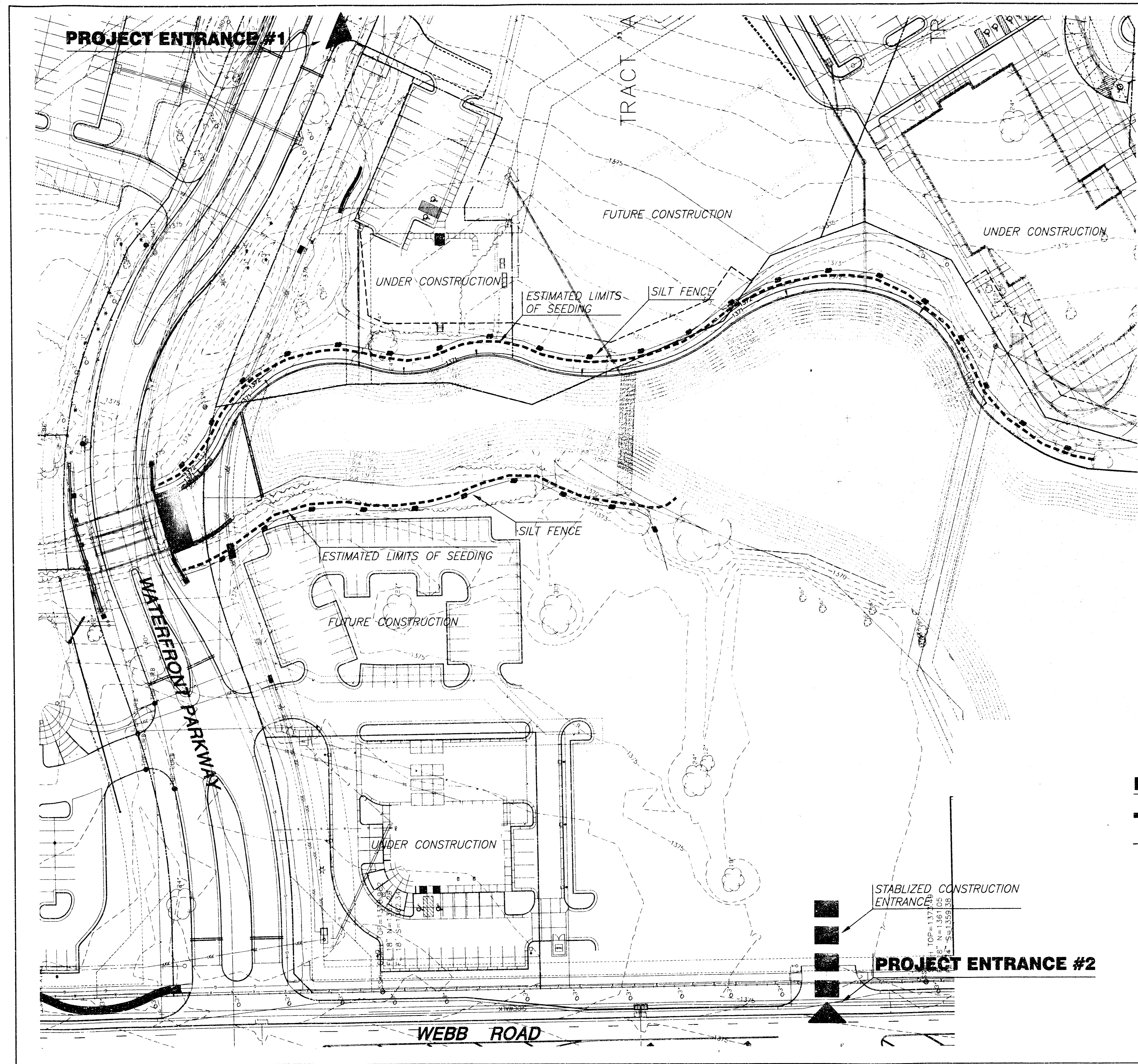
DRAWN BY: *DBC*

CHECKED BY: *JAG*

JULY 2005
DATE

02014
JOB NO.

5 / 11
SHEET/OF

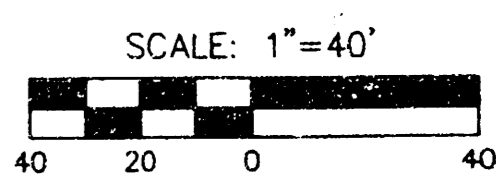
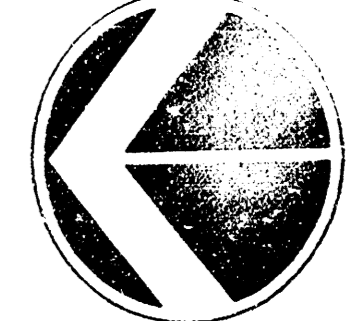


EROSION CONTROL NOTES

1. EROSION CONTROL IS TO MEET ALL FEDERAL, STATE, COUNTY & LOCAL CODE STANDARDS.
2. CONTRACTOR SHALL PROVIDE EROSION PROTECTION THROUGHOUT PROJECT CONSTRUCTION. THE PLAN PROVIDED HERE IS FOR FINAL PROTECTION, VARIOUS PHASES OF THIS PLAN SHALL BE IMPLEMENTED OR MODIFIED TO CONTROL EROSION. MODIFICATIONS OF THE PLAN SHALL BE APPROVED BY THE OWNERS REPRESENTATIVE.
3. SEEDING AREAS SHALL BE PREPARED FOR PLANTING WITH COMMON AGRICULTURAL TECHNIQUES. APPROVE WITH OWNER'S REPRESENTATIVE BEFORE PLANTING.
4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND IMPLEMENTING ALL EROSION CONTROL.
5. ALL SEED SHALL BE DISTRIBUTED WITH AN ACCEPTABLE DRILL INTENDED FOR SUCH OPERATIONS, OR OTHER EQUIPMENT APPROVED BY THE OWNER'S REPRESENTATIVE. SEEDING DEPTH SHALL BE 1/4" OR PER SEED SUPPLIERS SPECIFICATIONS.
6. ALL AREAS DISTURBED ABOVE THE NORMAL POOL ELEVATION SHALL BE SEEDED (COST SUBSIDIARY TO SITE RESTORATION) AND FERTILIZED AS FOLLOWS:
PERENNIAL RYE @ 200 LBS./ACRE
10-20-10 @ 350 LBS./ACRE
7. ALL AREAS SHALL BE FINE GRADED AND THE SURFACE SHALL BE FREE FROM STICKS, SMALL STONES, AND OTHER EXTRANEOUS MATERIALS.
8. ALL SEEDED AREAS SHALL BE IMMEDIATELY MULCHED W/PRAIRIE HAY AT 2 TONS/ACRE. ANCHOR MULCH BY CRIMPING INTO TOPSOIL WITH SUITABLE MECHANICAL EQUIPMENT.
9. PROJECT ENTRANCE #1 SHALL BE LIMITED TO CONCRETE DELIVERY TO AS GREAT EXTENT AS POSSIBLE.
10. PROJECT ENTRANCE #2 SHALL BE THE PRIMARY ENTRANCE FOR CONSTRUCTION ACTIVITIES. THE UNDEVELOPED AREA BETWEEN WEBB ROAD AND THE PROPOSED LAKE EXPANSION MAY SERVE AS AN EQUIPMENT STAGING AREA. THE EXISTING TREES WITHIN THIS AREA SHALL BE PROTECTED AS DEFINED IN THE NOTES ON SHEET 2. CONTRACTOR SHALL SEED DISTURBED PORTIONS OF THE STAGING AREA AND ALL OTHER AREAS AFFECTED BY THEIR CONSTRUCTION ACTIVITY.

LEGEND

- ESTIMATED SEEDING LIMITS (SEE KEY MAP - THIS SHEET)
- SILT FENCE

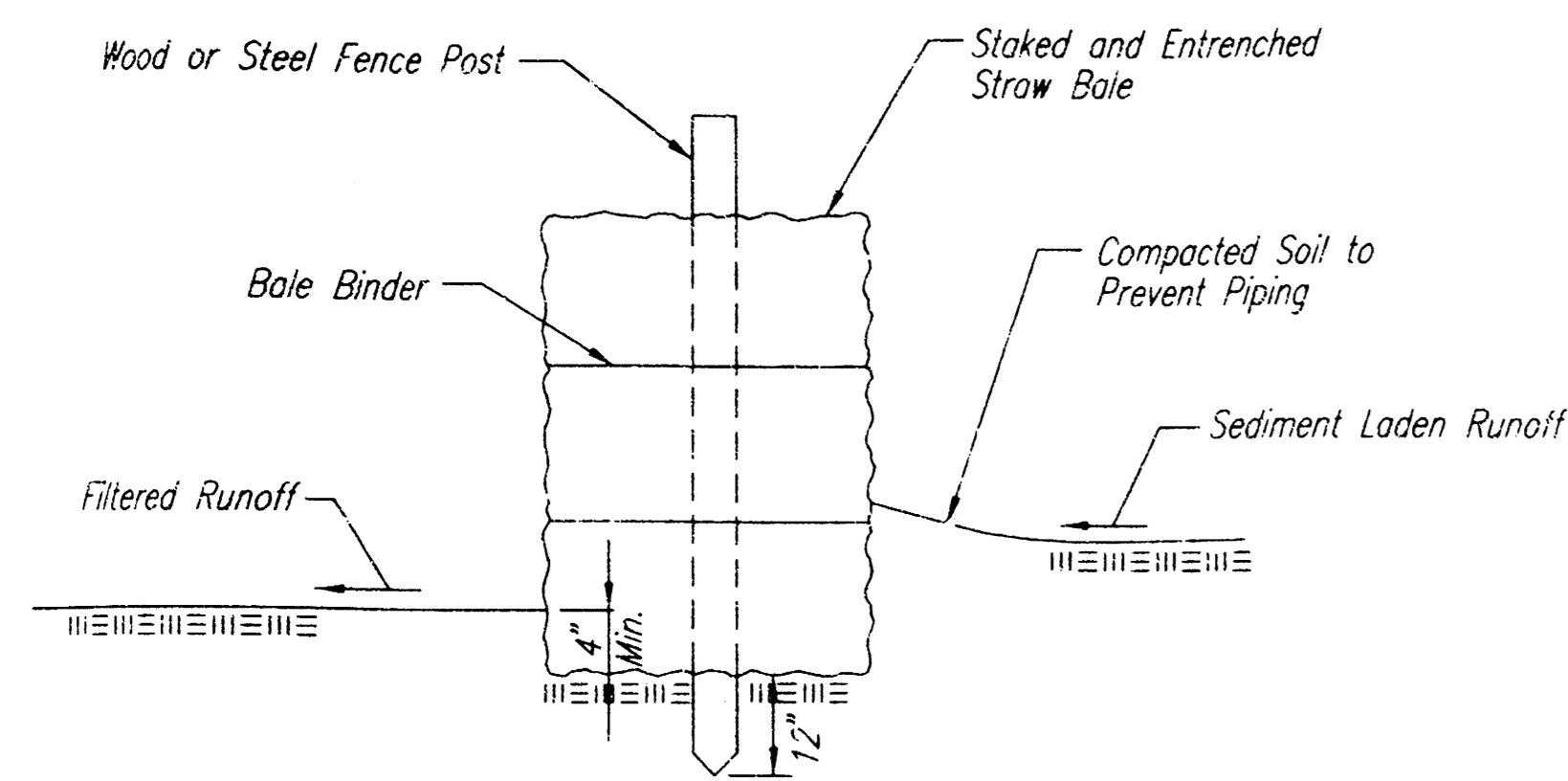


THE WATERFRONT ADDITION
PROJECT NAME

EROSION CONTROL PLAN
SHEET TITLE

DESIGN BY: DBC	DRAWN BY: DBC	CHECKED BY: JAG
DATE: AUGUST 2005	JOB NO.: 02014	SHEET/OF: 6 / 11

MKEC
ENGINEERING
CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67224
316 - 684 - 9600



STRAW BALE BARRIERS

Material Specification:

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

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.

When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow.

Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

Proper installation method:

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.

Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

List of common placement/installation mistakes to avoid:

When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails.

Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out.

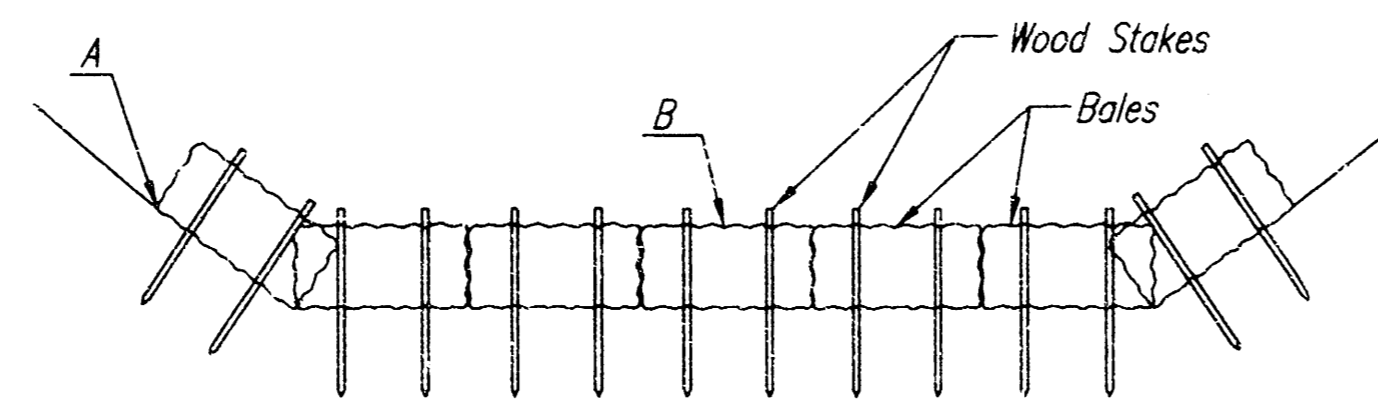
Bale slope barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

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

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

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



STRAW BALE DITCH CHECKS

Material Specification:

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

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch. The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.

Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.

Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

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

Ditch Check Spacing	Check Spacing
Ditch grade (%)	(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.

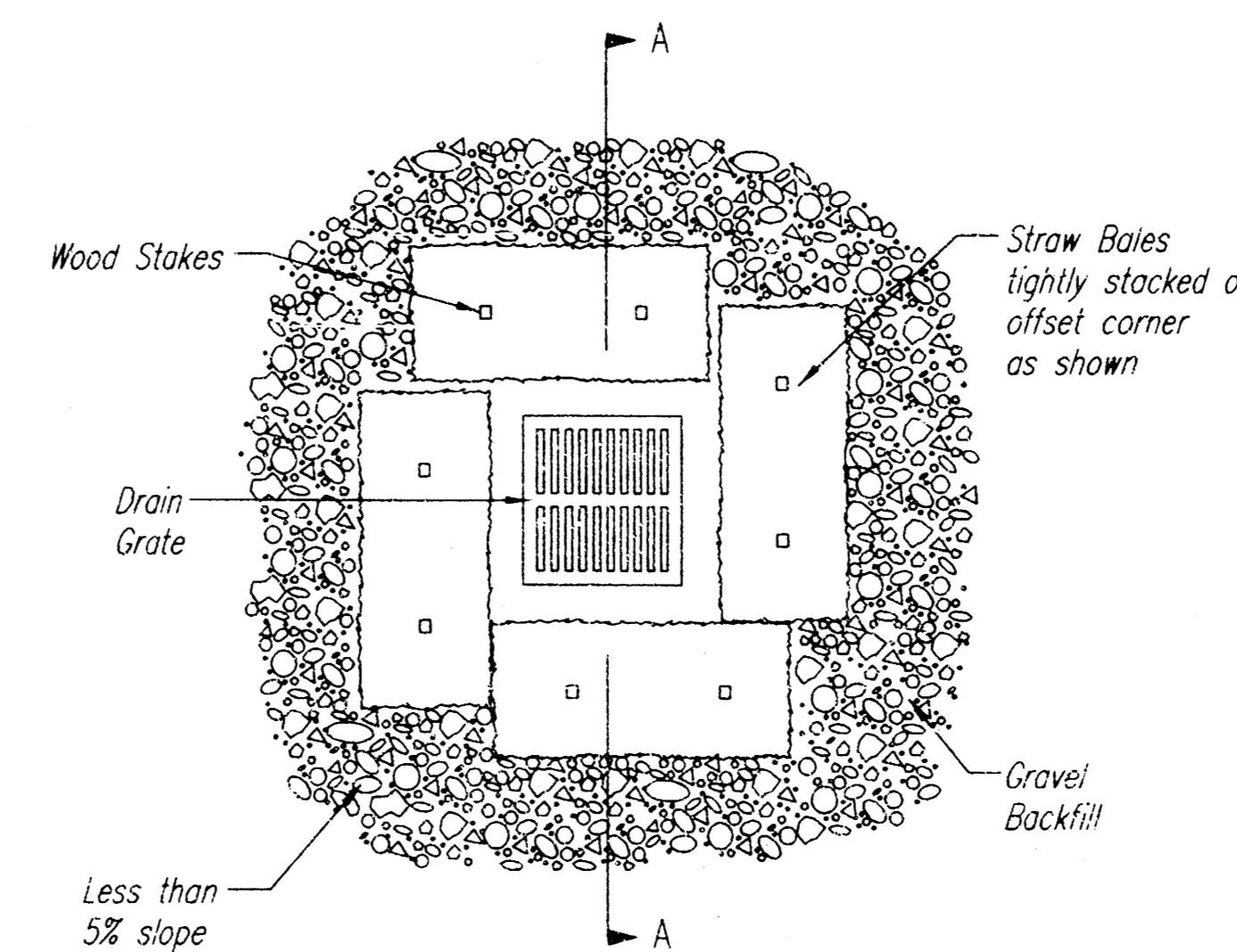
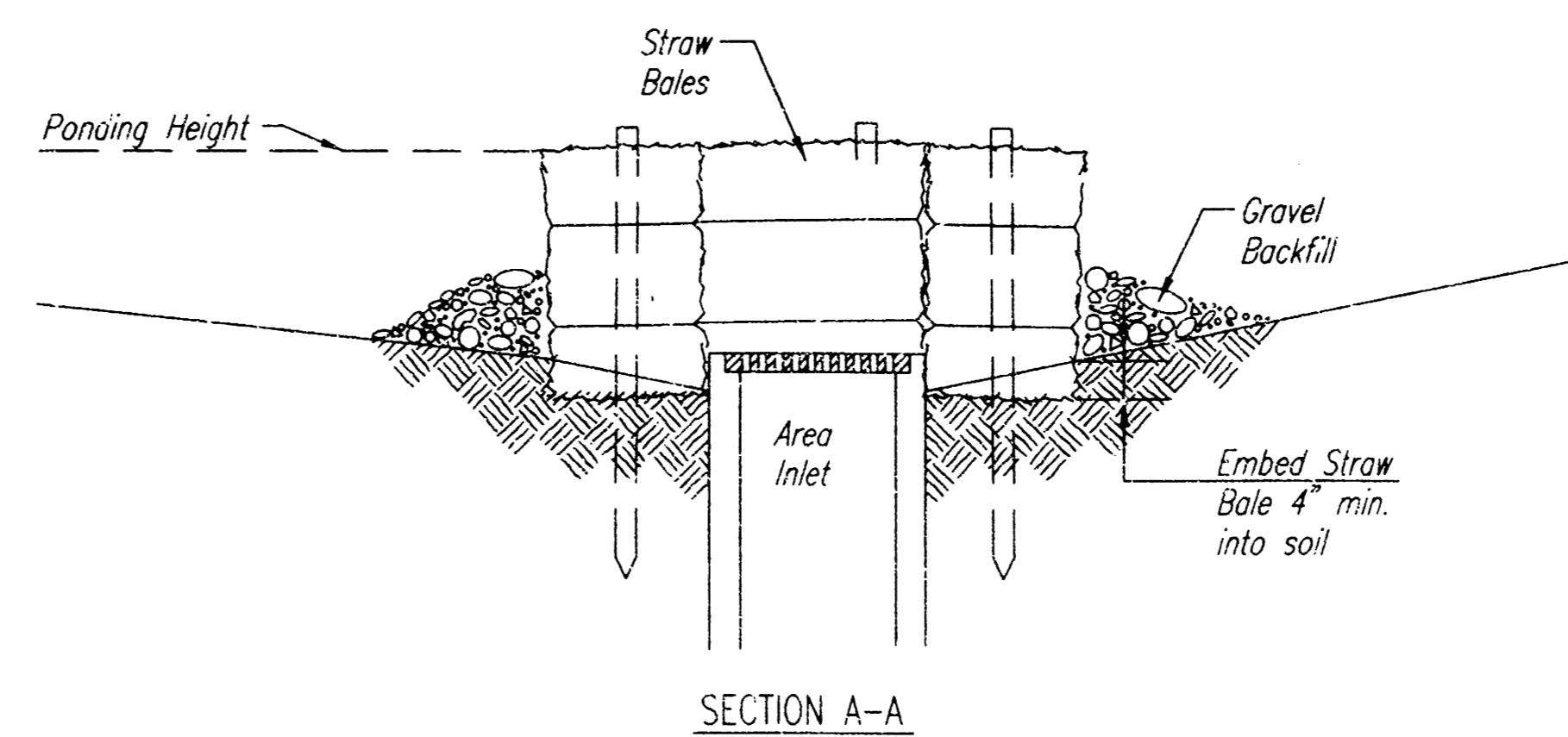
Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

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?



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.

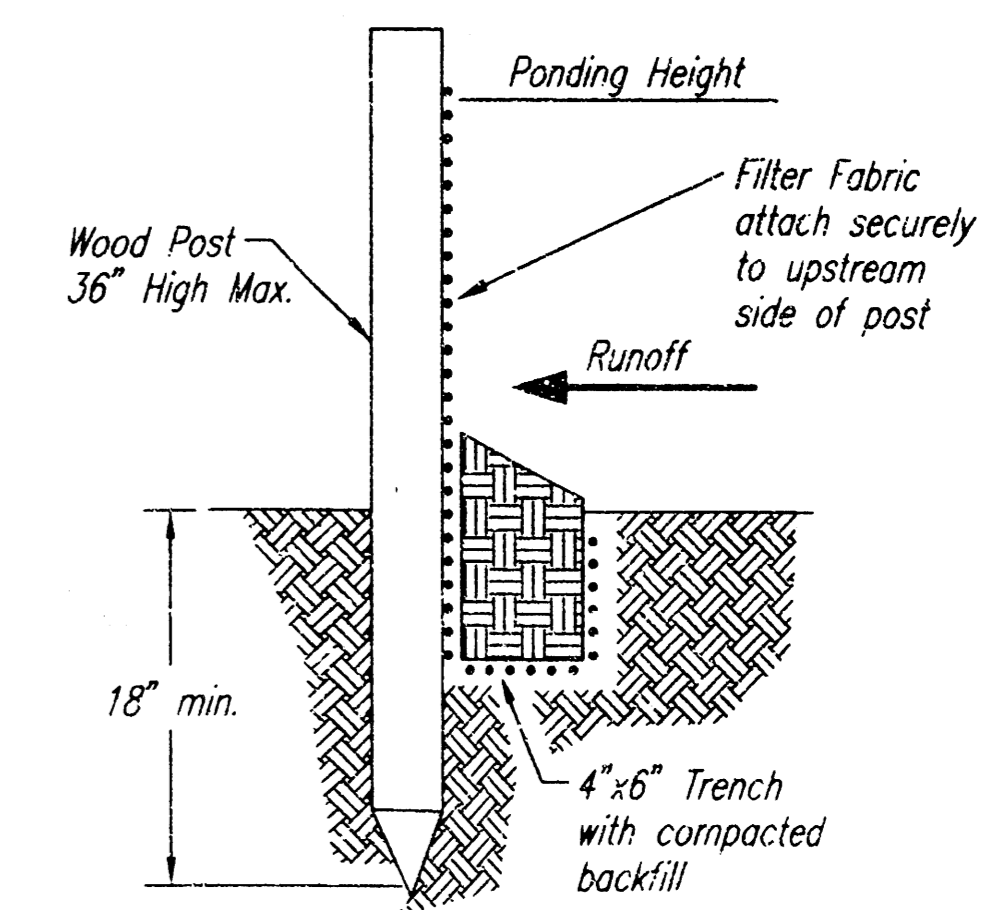
List of common placement installation mistakes to avoid:

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 of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

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



SILT FENCE BARRIERS

SILT FENCE BARRIERS

Material Specification:

Silt fence fabric should conform to the AASHTO M288 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, 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.

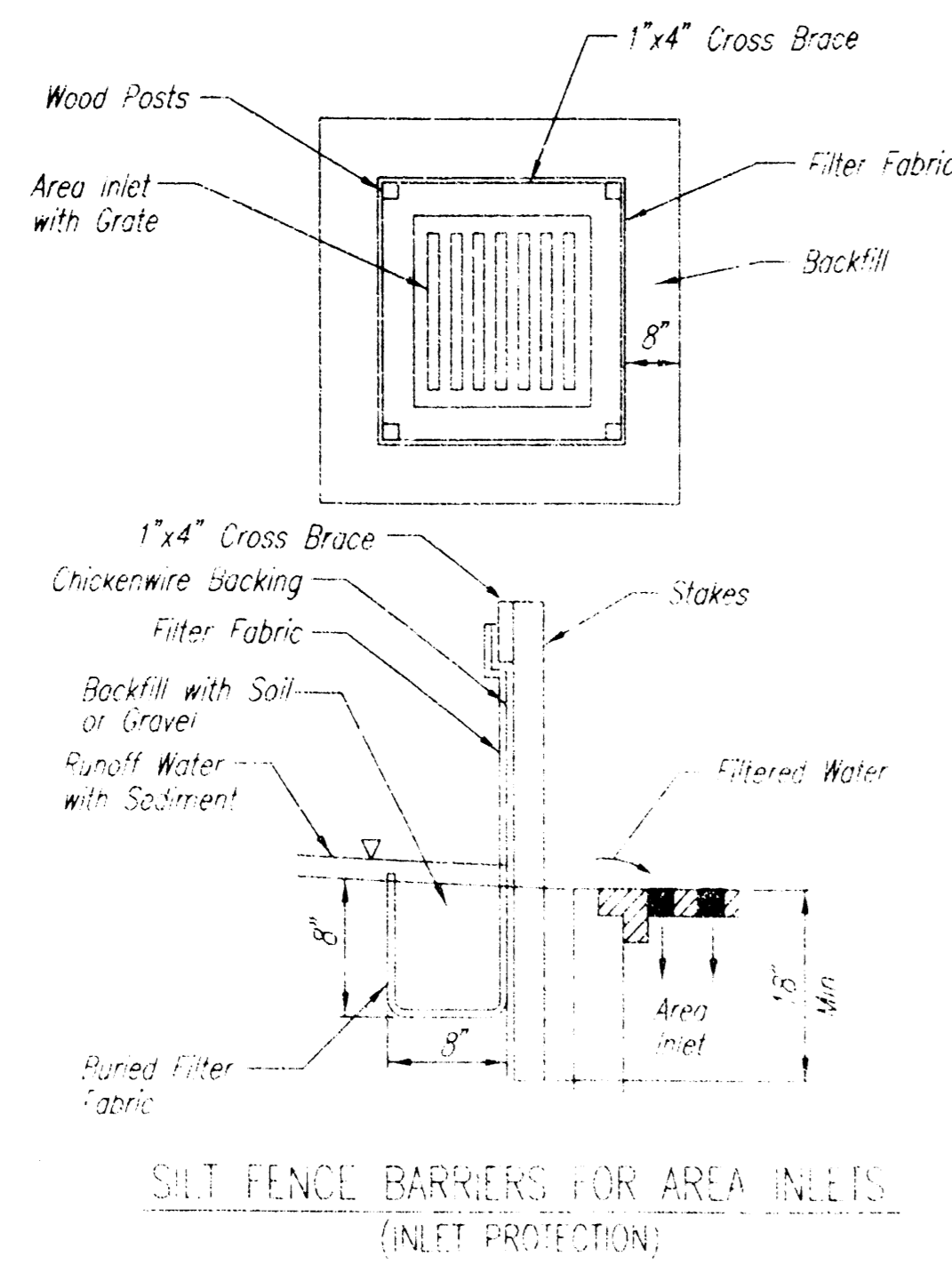
Silt fence slope barriers must be dug into the ground—silt fence at ground level does not work because water will flow underneath.

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?

	SOIL EROSION BMP DETAILS	
	CHRISTOPHER M. CARRIER, P.E. STORM WATER ENGINEER	
	PROJECT NUMBER 468-83950	OGA NO. 751394
	DATE AUG 2005	SHEET 7 OF



Material Specification:

Silt fence fabric should conform to the ASTM 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 barrier for 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.

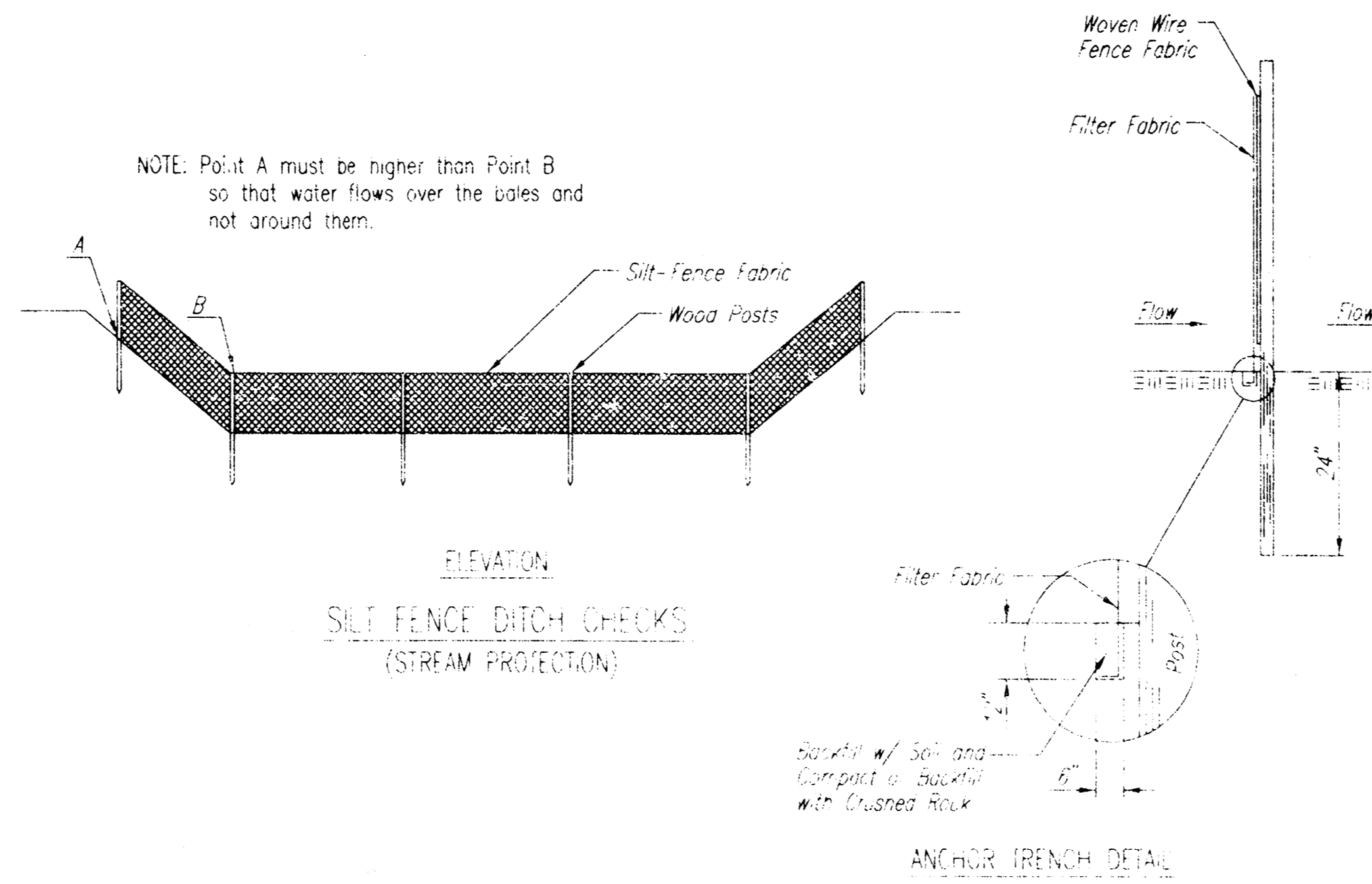
List of common placement/installation mistakes to avoid:

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?



Material Specification:

Silt fence fabric should conform to the ASTM 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 from 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 5% or less. For slopes steeper than 5%, rock checks should be used.

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

Ditch Check Ditch grade (%)	Spacing Check (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 both 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.

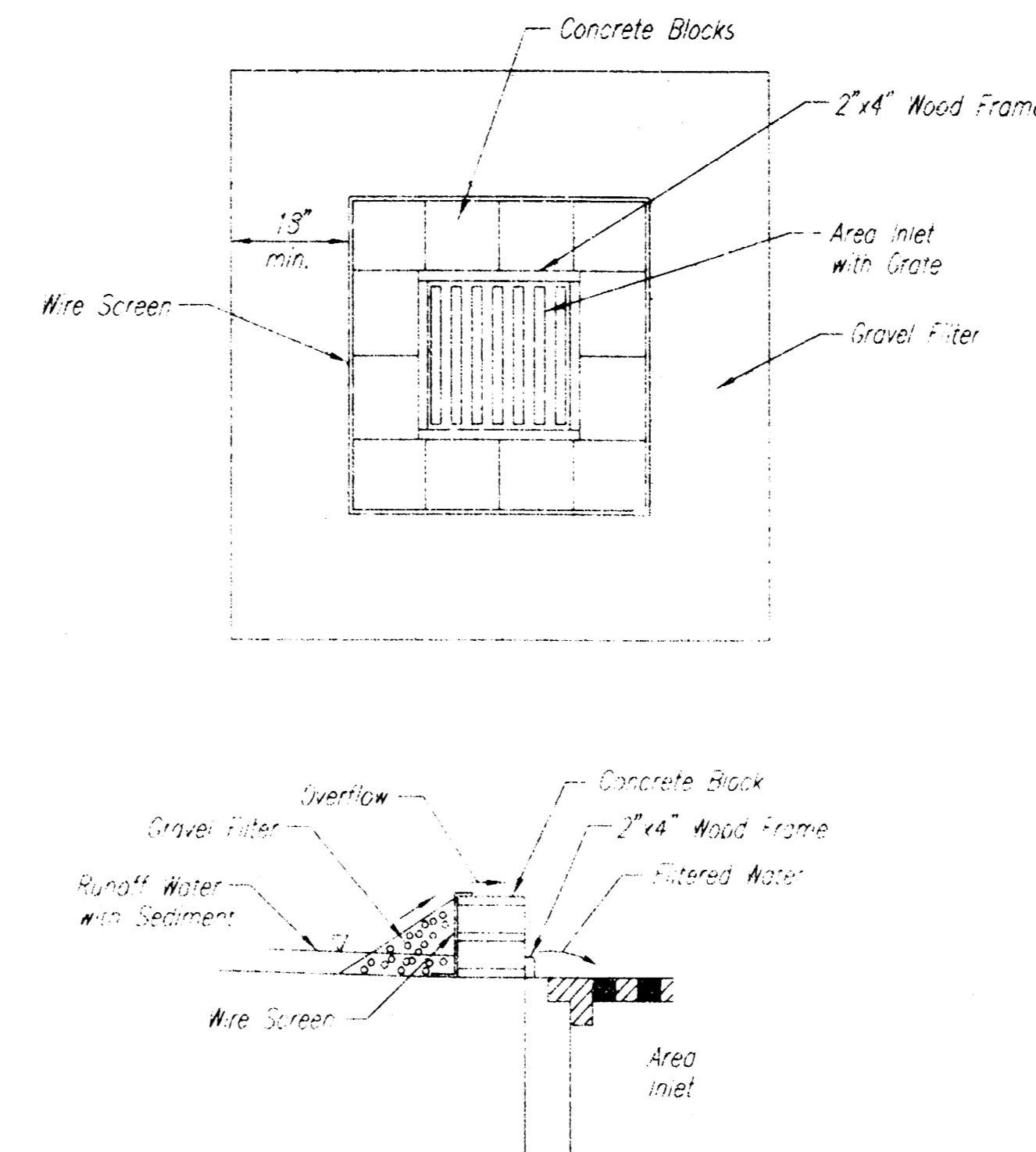
List of common placement/installation mistakes to avoid:

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 resisted 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.

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?



Material Specification:

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:

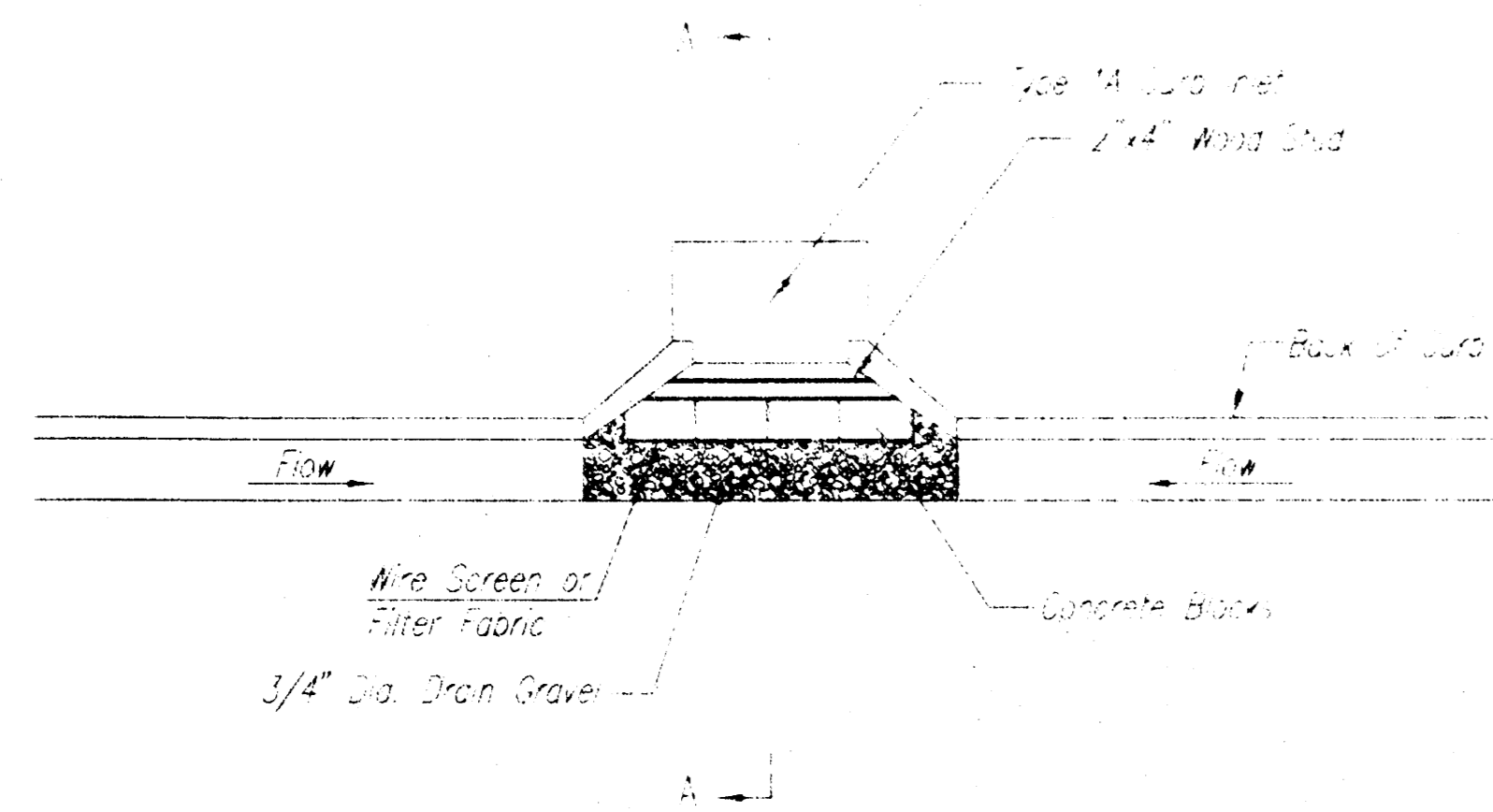
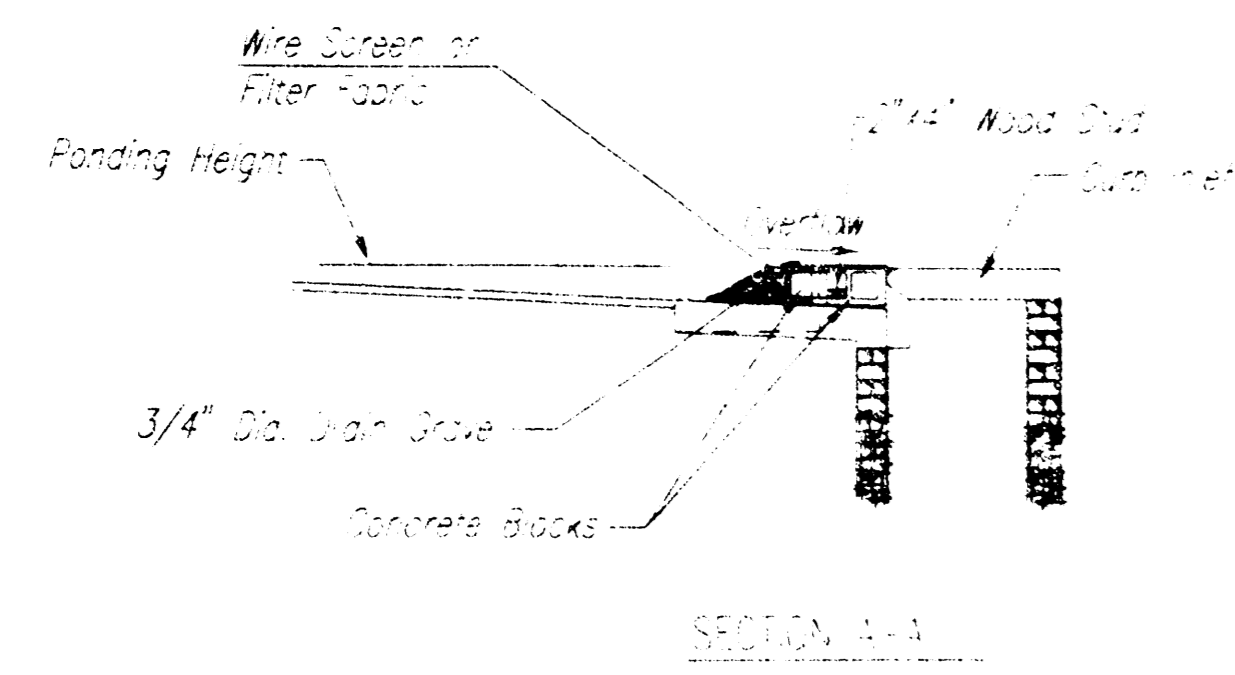
All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment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

**SOIL EROSION
BMP DETAILS**

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

PROJECT NUMBER: 468-83950 OCA NO.: 751394

DATE: AUG 2005 SHEET 8 OF 11



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 curb 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.

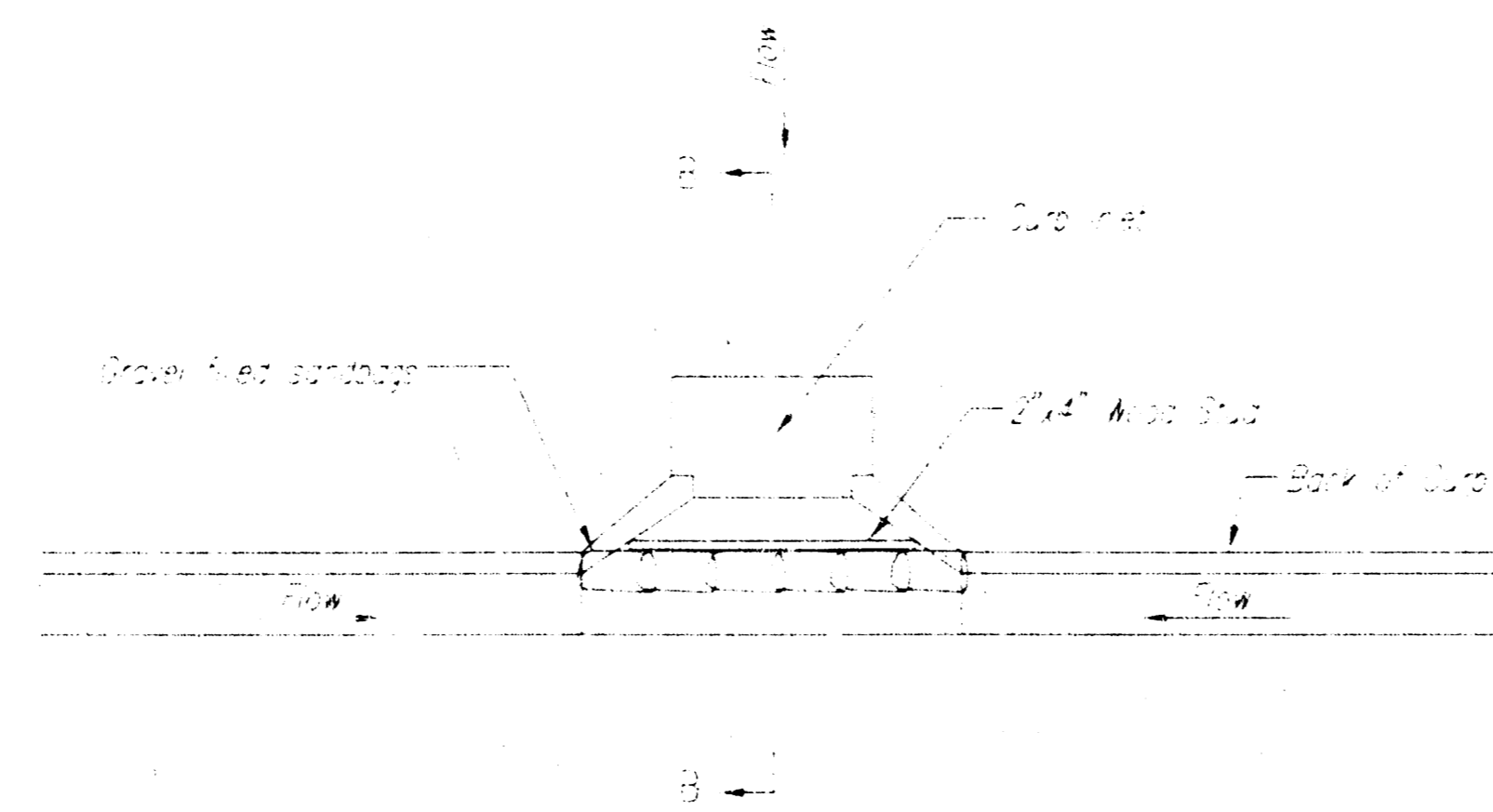
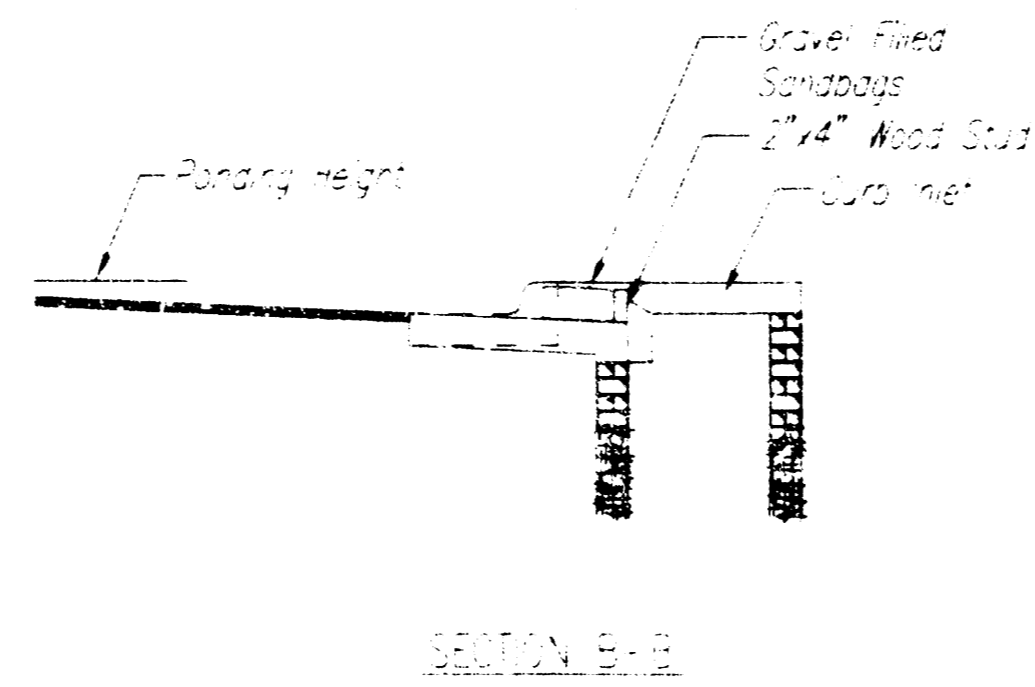
Instructions for Installing:

- 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, sign warning drivers about the structure may be necessary. An alternative notification is the use of gravel bags supported by a 2x4 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.

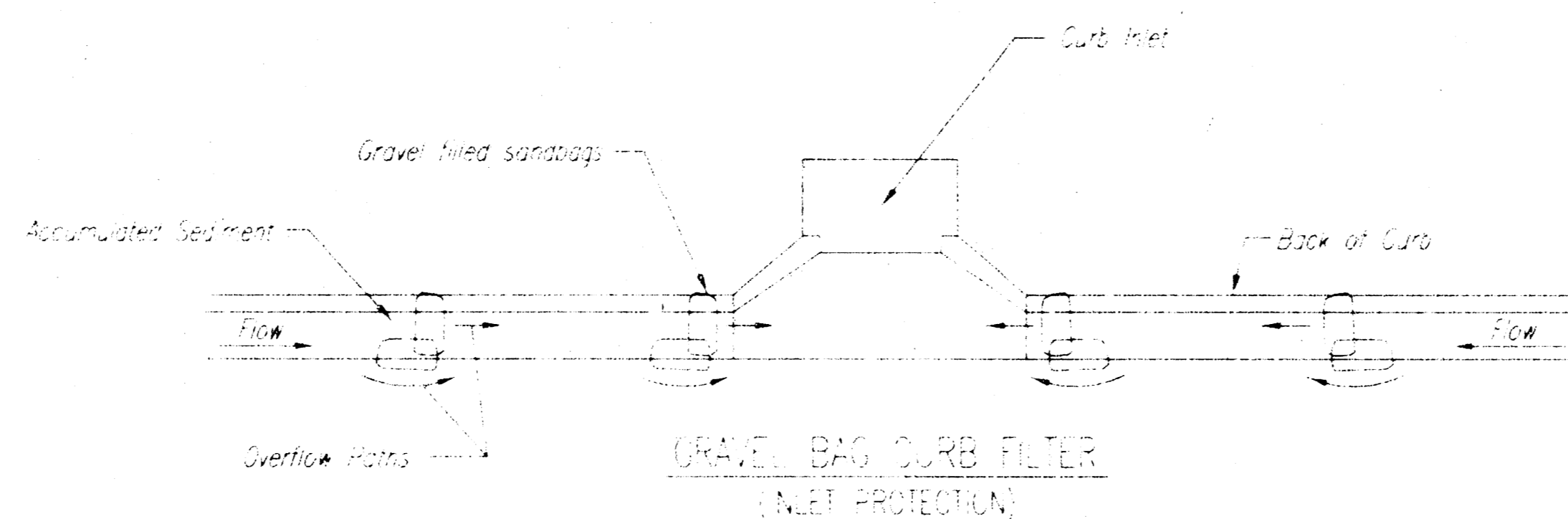
Maintenance:

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.



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 the rest of curb.

CURB SEDIMENT TRAPS

When traps are located on streets having a grade (i.e., bump 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 traps must be lower than the sidewalk.

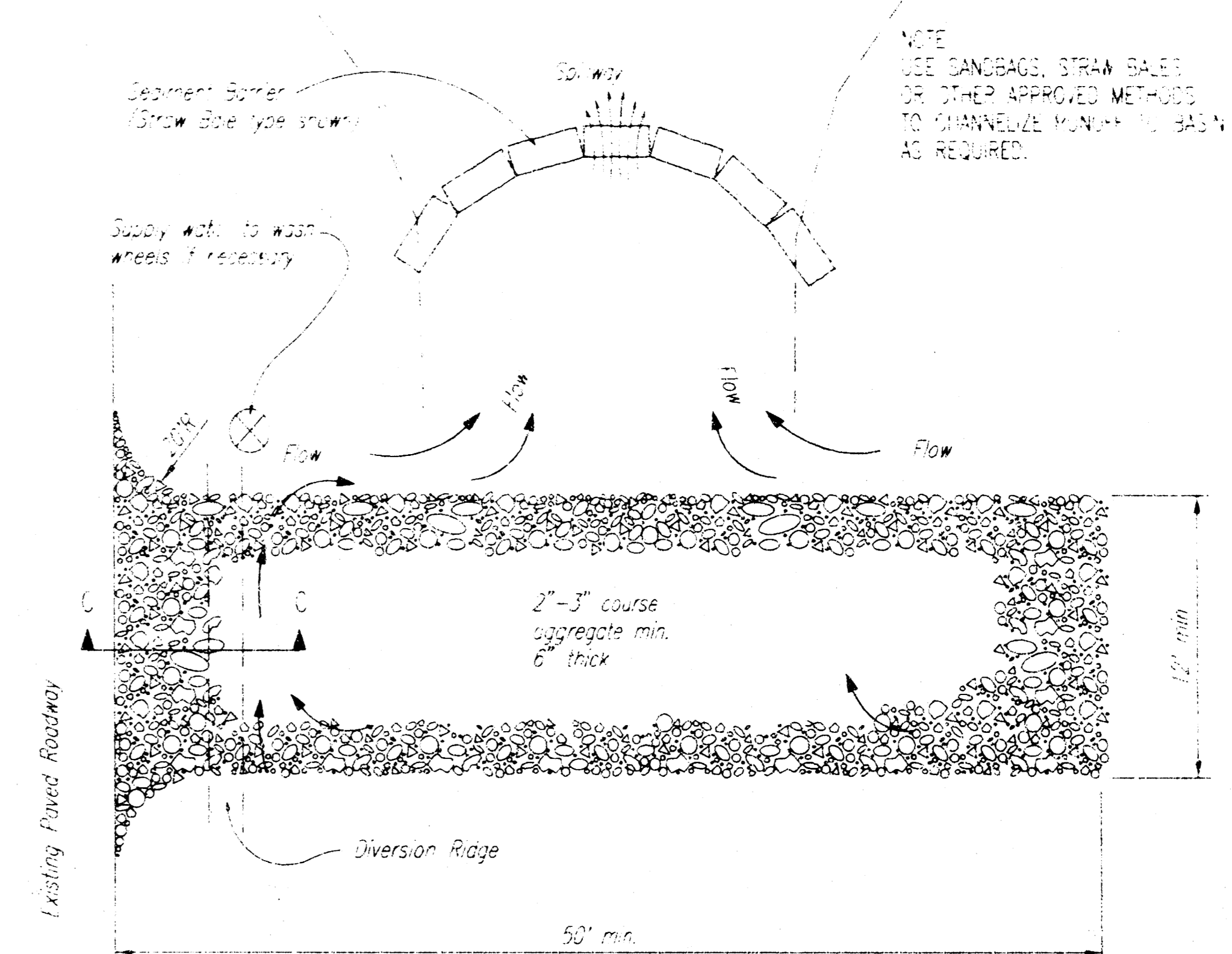
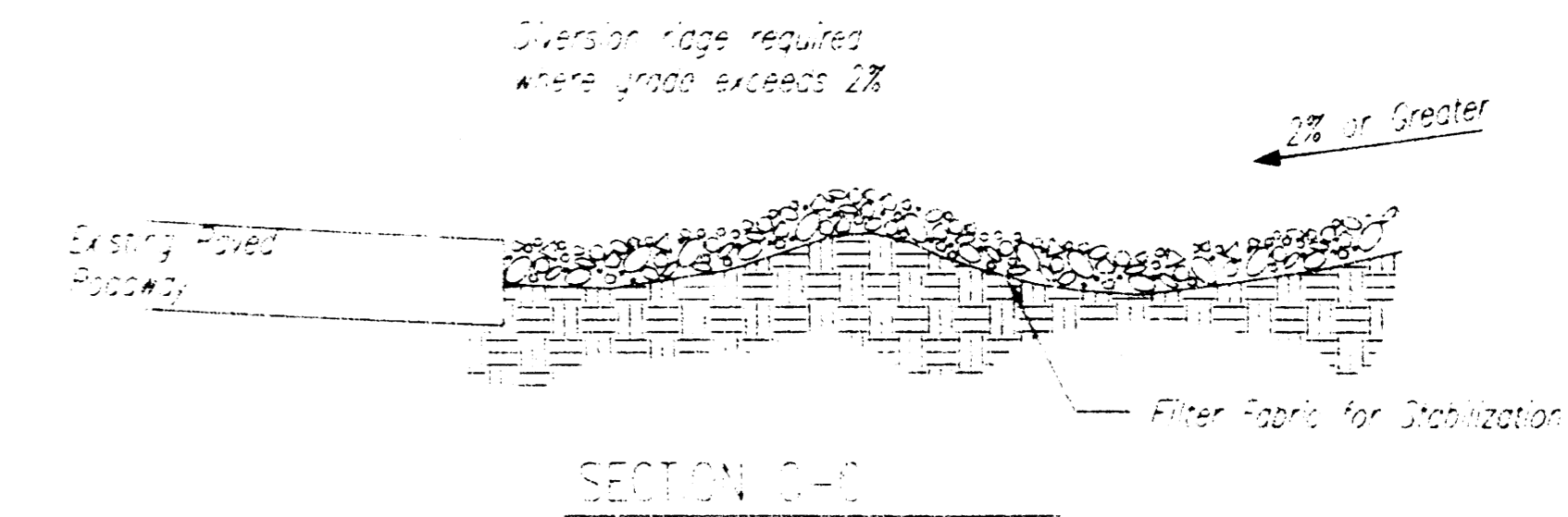
Spacing:

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	10
3.0	12
4.0	9
5.0	6

Maintenance:

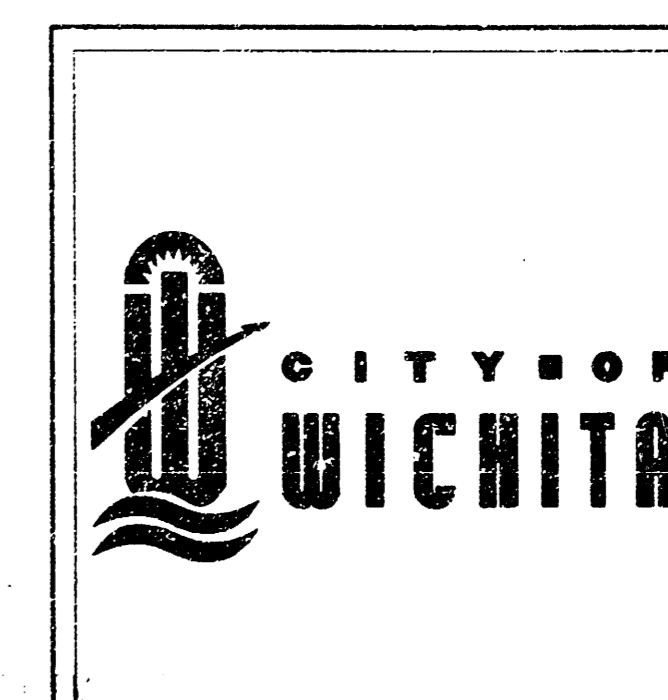
Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

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



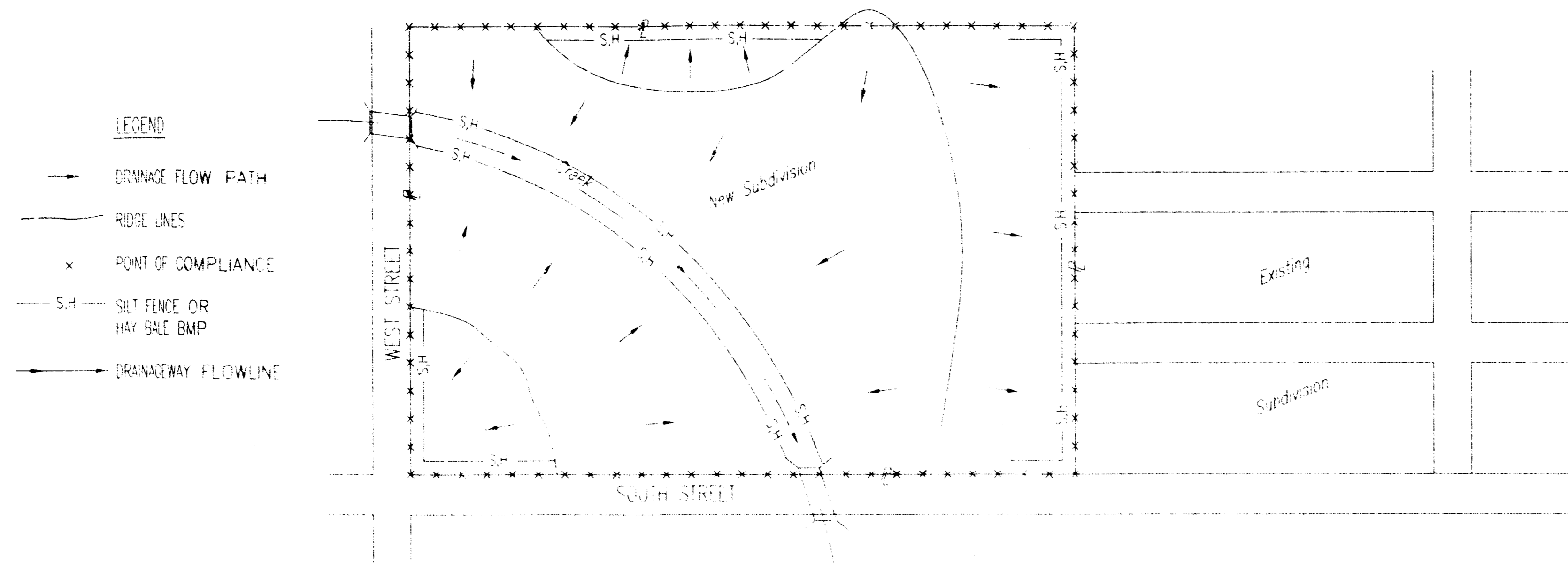
SOIL EROSION BMP DETAILS

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

PROJECT NUMBER: 468-83950
OCA NO.: 751394

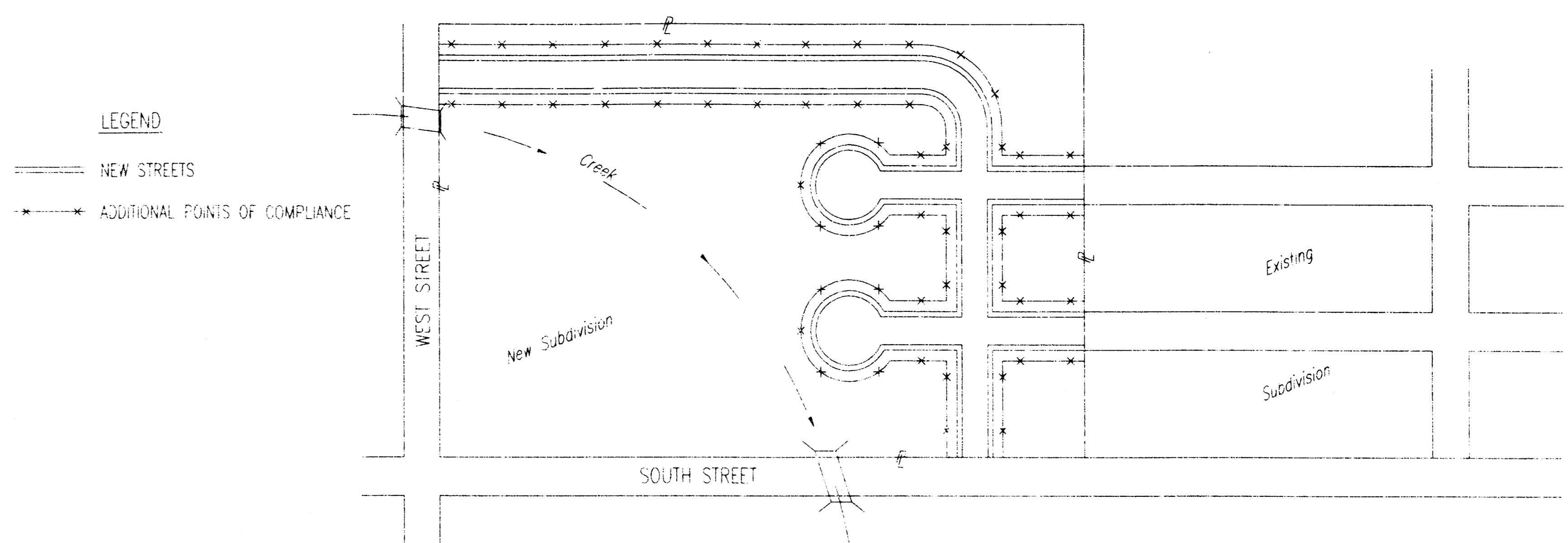
DATE: AUG 2005
SHEET 9 OF 11

PHASE 1 - INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



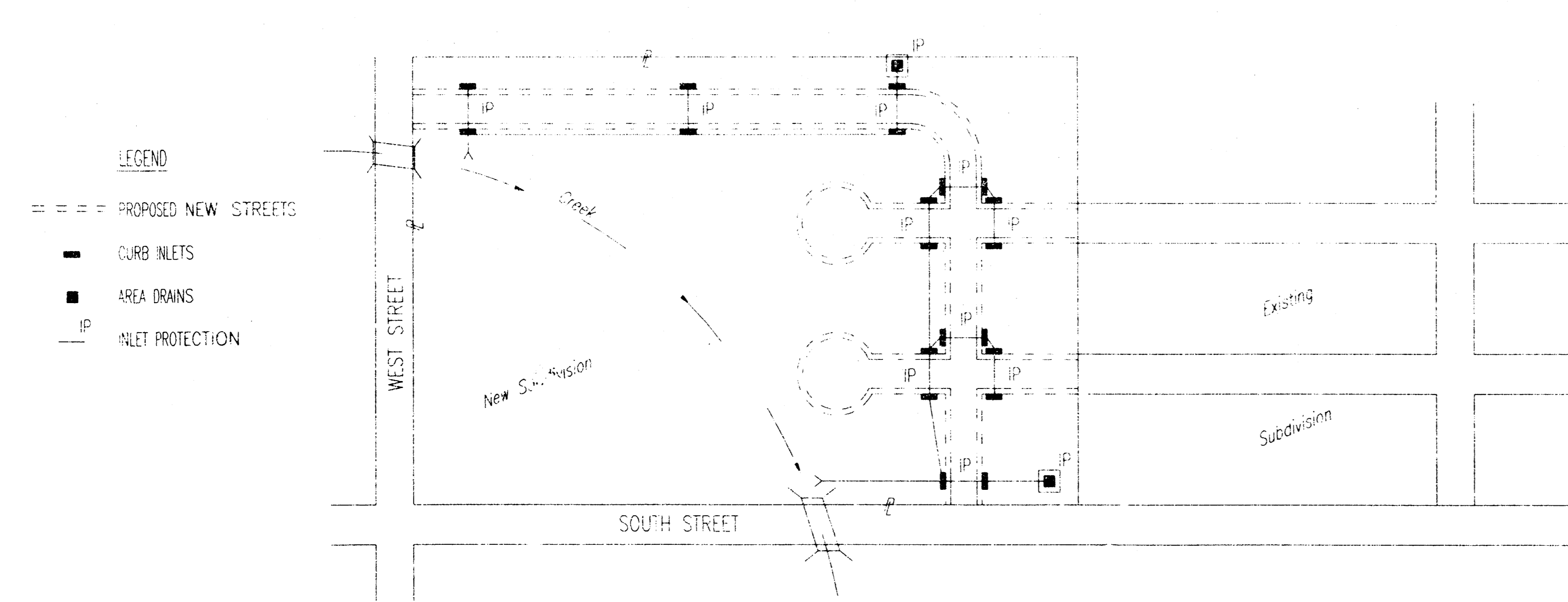
- LEGEND**
- DRAINAGE FLOW PATH
 - RIDGE LINES
 - x POINT OF COMPLIANCE
 - S-F SILT FENCE OR HAYBALE BMP
 - DRAINAGE FLOWLINE
- DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKE BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
 - HAYBALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE BMP'S WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
 - SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR DRAINAGES ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE BMP'S WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
 - ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED AT THE END OF EACH WORK DAY.
 - CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL BMP'S AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE BMP'S AT THEIR WORK LOCATIONS, AS NEEDED.
 - UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
 - THE SUBDIVISION DEVELOPER (OWNER) SHALL INSTALL AND MAINTAIN THE ON-SITE BMP'S.

PHASE 3 - STREET CONSTRUCTION



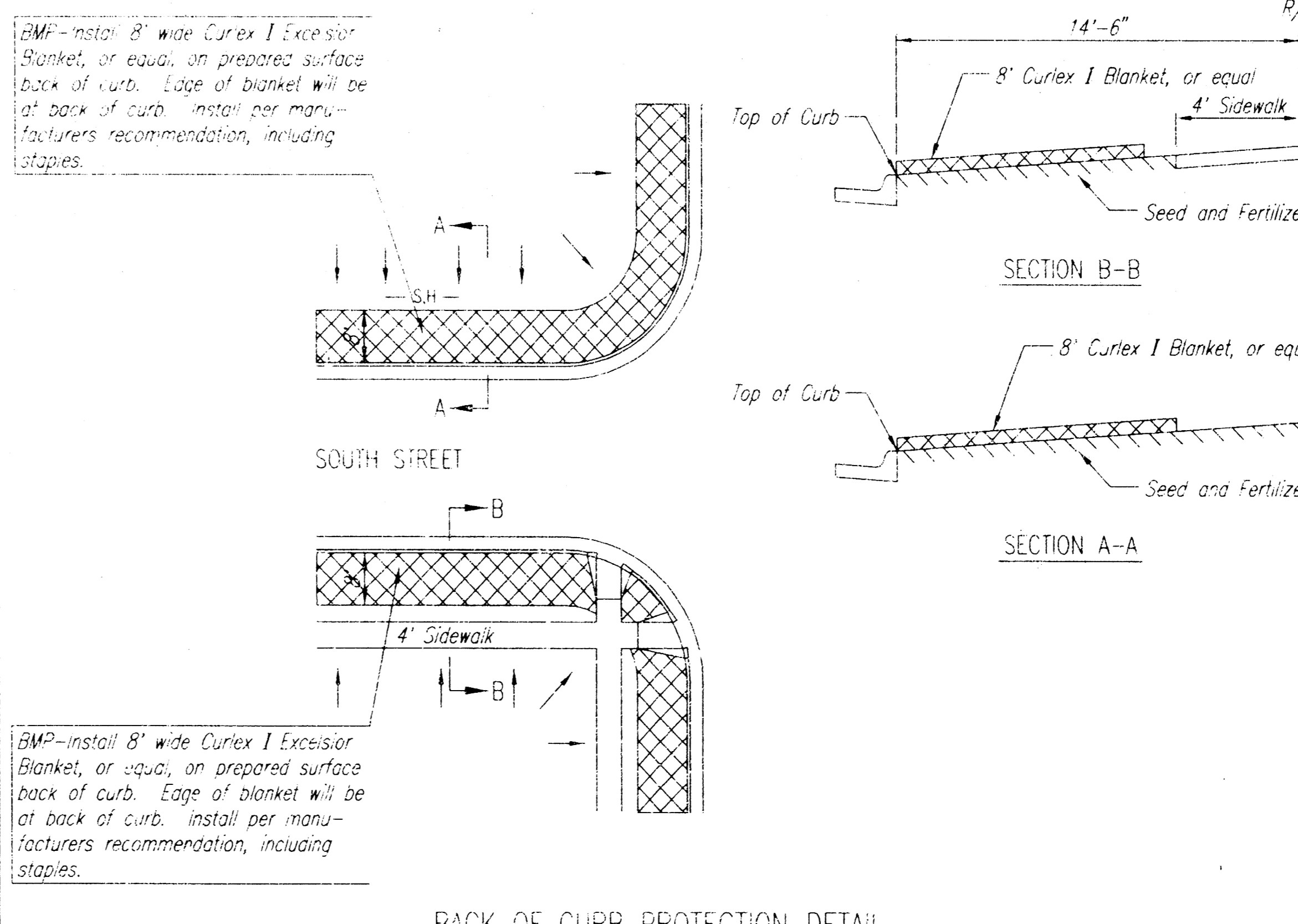
- LEGEND**
- NEW STREETS
 - x ADDITIONAL POINTS OF COMPLIANCE
- DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
 - CURB OPENING INLET PROTECTION
 - SUMP AREAS - INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
 - NON-SUMP LOCATIONS - PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
 - BMP'S WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), BMP'S WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
 - SEE DETAIL THIS SHEET ON BACK OF CURB PROTECTION.
 - THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAYBALE OR SILT FENCE BMP'S AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCESSIVE MATS.
 - THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB BMP'S.
 - THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB BMP'S IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

PHASE 2 - INSTALLATION OF STORM SEWER



- LEGEND**
- PROPOSED NEW STREETS
 - CURB INLETS
 - AREA DRAINS
 - IP INLET PROTECTION
- DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
 - AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
 - AREA DRAINS - AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAYBALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
 - CURB OPENING INLETS - AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION BMP'S MUST BE INSTALLED. SEE PHASE 3 - STREET CONSTRUCTION.
 - THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE BMP'S. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION.
 - THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE BMP'S ONCE INSTALLED.
 - ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

- GENERAL NOTES:**
- THE INTENT OF ALL BEST MANAGEMENT PRACTICES (B.M.P.'S) IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, OR ANY OTHER DRAINAGE FEATURE.
 - THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
 - BMP'S SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON THE BMP DETAIL SHEETS.
 - PERSONS DESTROYING BMP'S SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT BMP'S.
 - THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 5 ACRES OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL BMP'S ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLAN.
 - FOR SUBDIVISIONS SMALLER THAN 5 ACRES, SOIL EROSION BMP'S ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
 - FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
 - 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 THAT SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
 - A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.



SOIL EROSION BMP'S SUBDIVISION DEVELOPMENT PROCESS

CITY OF WICHITA

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

PROJECT NUMBER: 468-83950 OCA NO.: 751394

DATE: AUG 2005 SHEET 10 OF 11

FINAL PLAT

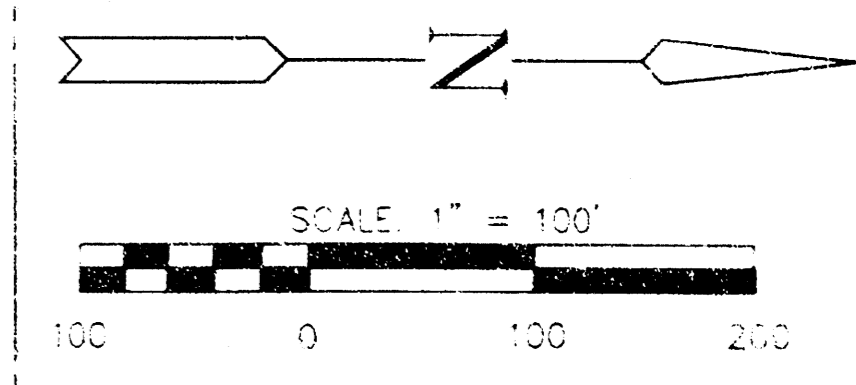
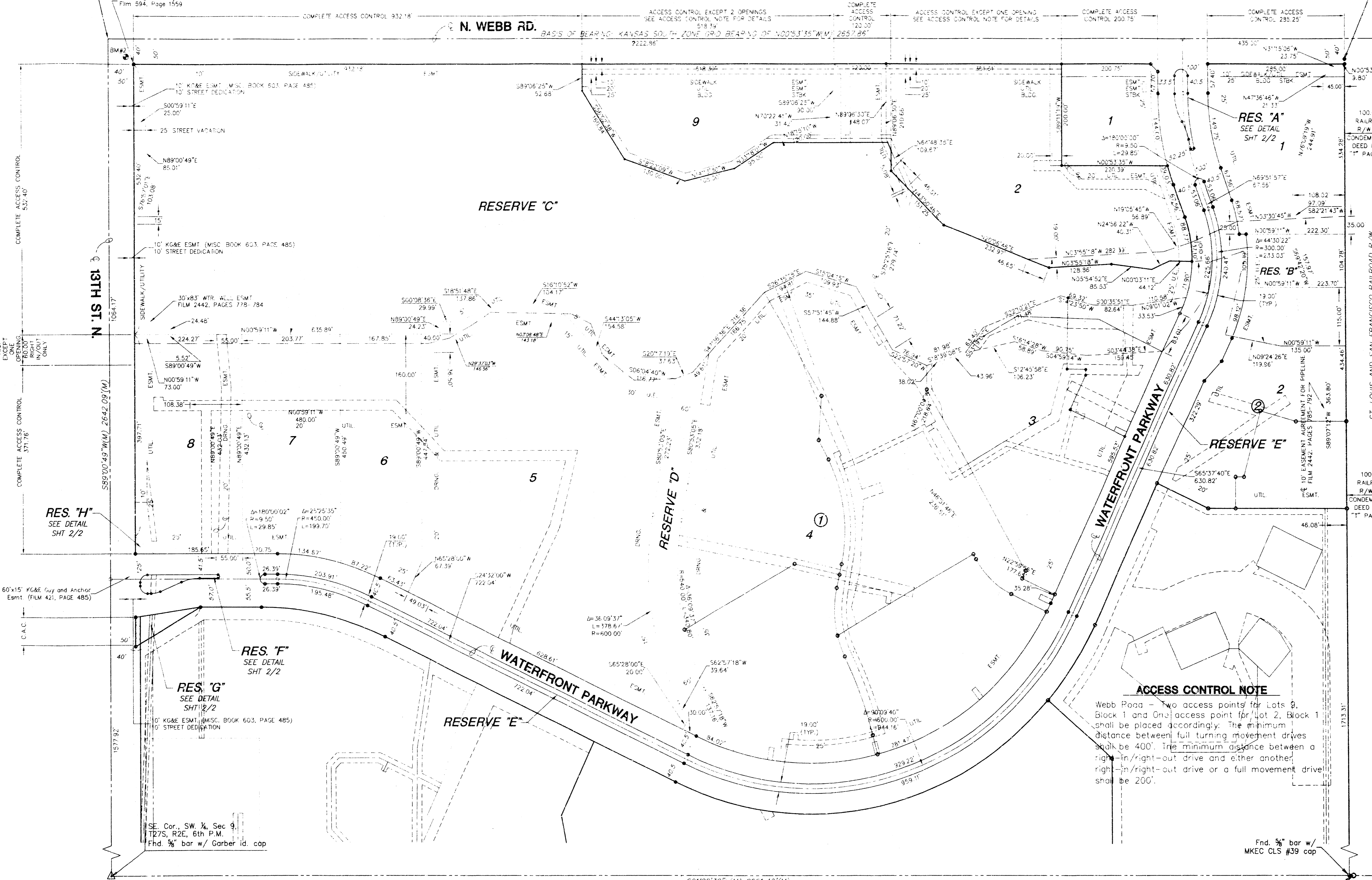
THE WATERFRONT ADDITION

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

SW. Cor., SW. 1/4, Sec. 9,
T27S, R2E, 6th P.M.
Fnd. chiseled "X"

P.O.B.
Fnd. 5/8" bar w/
MKEC CLS #39 cap

NW. Cor., SW. 1/4, Sec. 9,
T27S, R2E, 6th P.M.
Fnd. 3/4" pipe in thimble



- LEGEND**
- △ = SECTION CORNER MONUMENT FOUND
 - = FOUND PROPERTY CORNER REBAR
 - = SET 5/8" REBAR W/ MKEC CLS #39 CAP
 - B.S. = BUILDING SETBACK
 - U.E. = UTILITY EASEMENT
 - (M) = MEASURED DIMENSION
 - ▭ = STREET DEDICATION
 - ▭ = STREET VACATION

- BENCHMARKS**
- BM#1 Square cut SE corner of headwall 44' N. and 42' E. of W. 1/4 cor., Sec. 9, T27S, R2E. ELEV. = 192.73 (City Datum) 1380.13 NGVD
 - BM#2 Square cut SW corner signal light pole base NE corner Webb and 13th. ELEV. = 185.945 (City Datum) 1373.345 NGVD

MINIMUM PAD ELEVATIONS (LOWEST OPENINGS)		
LOT	BLOCK	ELEVATION (CITY DATUM) ELEVATION (NGVD)
2	1	188.1 1375.5
3	1	188.1 1375.5
4	1	187.6 1375.0
5	1	187.6 1375.0
6	1	187.0 1374.4
7	1	187.0 1374.4
8	1	187.0 1374.4
9	1	187.0 1374.4
1	2	189.1 1376.5
2	2	189.1 1376.5

ACCESS CONTROL NOTE

Webb Road - Two access points for Lots 9, Block 1 and One access point for Lot 2, Block 1 shall be placed accordingly. The minimum distance between full turning movement drives shall be 400'. The minimum distance between a right-in/right-out drive and either another right-in/right-out drive or a full movement drive shall be 200'.

SE. Cor., SW. 1/4, Sec. 9,
T27S, R2E, 6th P.M.
Fnd. 3/4" bar w/ Garber id. cap

Fnd. 3/4" bar w/
MKEC CLS #39 cap

NE. Cor., SW. 1/4, Sec. 9,
T27W, R2E, 6th P.M.
Fnd. 1/2" pipe

NE. Cor., SE. 1/4, Sec. 9,
T27W, R2E, 6th P.M.
Fnd. RR Spike