

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE BASED ON CITY OF WICHITA DATUM. (USGS-1187.4= CITY DATUM)

2. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA IS NOT TO BE CARRIED THROUGH CONSTRUCTION. LOCAL RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA IS TO BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.

3. UTILITY SERVICE LINES, POLES, VALVE BOXES, METERS, ECT. 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 PLAN LOCATIONS ARE NOT GUARANTEED AND ADDITIONAL UTILITIES MAY ALSO BE ENCOUNTERED. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

4. 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 FLOODPLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIALS DUMPED IN WATERS OF THE UNITED STATE OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

5. 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 OR
687-2470(LOCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

Cox Cable 262-4270 or 263-2061
Southwestern Bell Telephone 1-571-2911
Kansas Gas Service 832-3168
K&E-Electric 268-4555
Peoples Natural Gas 942-8811
City of Wichita(Water & Sewer) 268-4555

THE CONTRACTOR SHALL NOTIFY PIPELINE COMPANIES AT LEAST 24 HOURS IN ADVANCE OF ANY WORK BEING PERFORMED ACROSS AND/OR ADJACENT TO PIPELINES.

6. 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 ENGINEERS APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO REESTABLISH 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.

8. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN(10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

9. THE CONTRACTOR SHALL ADJUST WATER VALVE BOXES, WATER METER BOXES AND FIRE HYDRANTS AS NOTED IN THE PLANS AND AS DIRECTED BY THE ENGINEER. MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR THE ADJUSTMENT OF WATER METER AND VALVE BOXES AND FIRE HYDRANTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK IN THE CONTRACT. THE WATER DEPARTMENT SHALL FIELD LOCATE WATER VALVES ONE TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, WATER VALVE BOXES, OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

10. THE CONTRACTOR MUST EXAMINE THE CONSTRUCTION SITE PRIOR TO BIDDING AND BE SATISFIED AS TO THE WORK SHOWN FOR COMPLETION. AFTER BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL NOT ASSERT THAT THERE WAS A MISUNDERSTANDING OF THE QUANTITIES OF WORK OR OF THE NATURE FOR THE WORK TO BE COMPLETED.

11. CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.

12. THE CONTRACTOR SHALL FERTILIZE, SEED, AND MULCH ALL AREAS WHICH ARE DISTURBED AS A RESULT OF THIS PROJECT. ALL COST TO BE SUBSIDIARY TO "SITE RESTORATION".

13. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT ADDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) TO ENSURE A SAFE WORK ZONE FOR THE TRAVELING PUBLIC.

14. PAVEMENT REMOVAL AND/OR REPLACEMENT WILL BE MEASURED AND PAID FOR ON THE SQUARE FOOT BASIS REGARDLESS OF PAVEMENT TYPE AND/OR PAVEMENT THICKNESS. MINIMUM LIMITS OF SUCH PAVEMENT REMOVAL AND REPLACEMENT SHALL BE ONE FOOT BEYOND THE LIMITS OF EXCAVATION MADE FOR THE SEWER OR THE STRUCTURE, EXCEPT WHEN SUCH LIMITS OF REMOVAL ARE WITHIN THREE(3) FEET OF AN EXISTING JOINT. REMOVAL AND REPLACEMENT OF EXISTING PAVEMENT SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE CITY OF WICHITA STANDARD SPECIFICATIONS.

15. ALL DRIVEWAY ENTRANCE AND CROSS ROAD PIPE WITHIN THE PROJECT LIMITS SHALL BE REMOVED BY THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLANS. REMOVAL OF SUCH PIPES SHALL CONFORM TO THE APPLICABLE SECTION OF THE STANDARD SPECIFICATIONS.

16. ALL FENCE LOCATED WITHIN THE RIGHT-OF-WAY WILL BE REMOVED AND SALVAGED BY THE CONTRACTOR. ALL MATERIALS SHALL BE SALVAGED FOR THE PROPERTY OWNER. FENCE OUTSIDE THE RIGHT-OF-WAY WHICH IS REMOVED FOR CONSTRUCTION SHALL BE REPAIRED IN A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL, AT NO ADDITIONAL COST TO THE OWNER, UNLESS OTHERWISE SPECIFIED ON THE PLANS. MATERIALS NOT SALVAGED BY THE PROPERTY OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR.

17. CONTRACTOR SHALL GIVE PROPERTY OWNERS ADJUTING THIS PROJECT, WHOSE YARDS WILL BE LOWER THAN THE NEW FINISHED GRADE ELEVATION AT THE RIGHT-OF-WAY LINE, AN OPPORTUNITY TO UTILIZE EXCESS EXCAVATED MATERIAL FROM THE PROJECT TO REGRADE THEIR YARDS TO DRAIN TO THE NEW PAVEMENT. CONTRACTOR WILL BE REQUIRED TO DUMP AND SPREAD THE EXCESS MATERIAL AS REQUIRED BY THE SPECIFICATIONS WHEN REQUESTED BY THE PROPERTY OWNER. THE CONTRACTOR SHALL ASCERTAIN THAT A DIRT ORDER HAS BEEN PROPERLY EXECUTED BY THE PROPERTY OWNER BEFORE ANY SUCH EXCESS MATERIAL IS DELIVERED TO SUCH PROPERTIES.

18. THE CONTRACTOR SHALL ADJUST SANITARY SEWER MANHOLES AND STORM SEWER MANHOLES FOR ELEVATION AND SLOPE AS REQUIRED TO FIT PROPOSED FINISH GRADES.

19. THE CITY OF WICHITA'S DEPARTMENT OF OPERATIONS AND MAINTENANCE WILL REMOVE AND REPLACE EXISTING STREET SIGNING AT THE BEGINNING AND END OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS ACTIVITIES WITH THE DEPARTMENT OF OPERATIONS AND MAINTENANCE FOR TEMPORARY TRAFFIC SIGNALIZATION AND REMOVAL OF INSTALLATION OF STREET SIGNING.

20. ALL CONSTRUCTION AND MATERIALS, UNLESS OTHERWISE NOTED, TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.

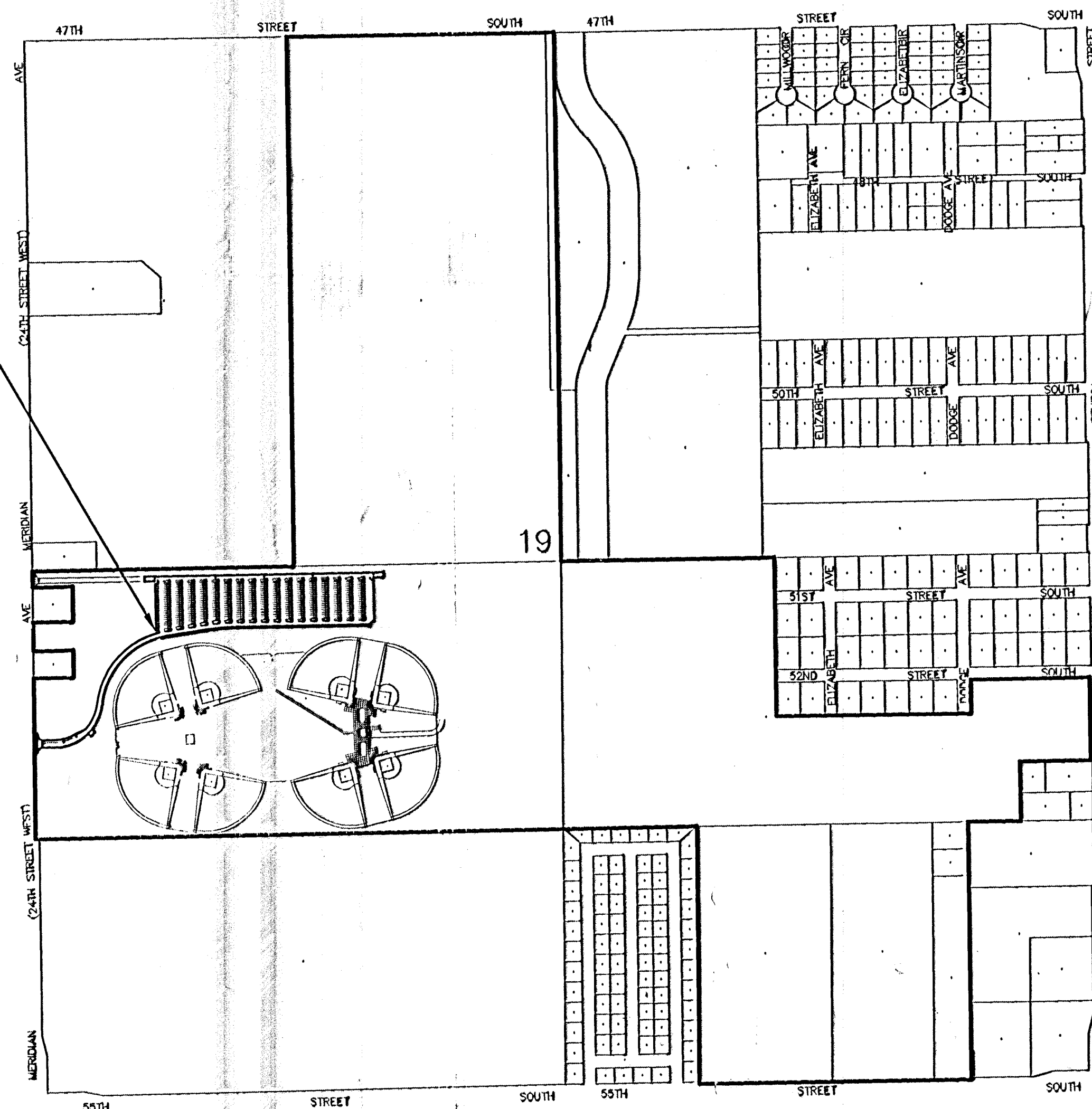
21. THE COST OF CONCRETE DRIVEWAY REMOVAL SHALL INCLUDE A SAW CUT OF A MINIMUM DEPTH OF ONE FOURTH OF THE PAVEMENT THICKNESS. THE SAW CUT SHALL BE AT THE PROPERTY LINE OR THE NEAREST JOINT. THE EXACT LOCATION SHALL BE DETERMINED BY THE FIELD ENGINEER.

DRIVE & PARKING LOT IMPROVEMENTS FOR SOUTHLAKES PARK, LOCATED EAST OF MERIDIAN AVE., BETWEEN 47TH ST. S. & 55TH ST. S., WICHITA, KANSAS PROJECT NO.: 472 83603 (785028), PARKS AND RECREATION DEPARTMENT CITY OF WICHITA, KANSAS MIKE LINDEBAK, P.E., CITY ENGINEER JULY 2002

PROPOSED IMPROVEMENTS

SURVEY CONTROL MONUMENTS

CM #1	N-20000.000 E-20000.000	1/2" Rebar W/ Savoy Cap
CM #2	N-19970.731 E-20778.736	1/2" Rebar W/ Savoy Cap
CM #3	N-19284.293 E-20225.224	1/2" Rebar W/ Savoy Cap
CM #4	N-19768.532 E-21362.240	1/2" Rebar W/ Savoy Cap
CM #5	N-20108.150 E-21914.570	1/2" Rebar W/ Savoy Cap

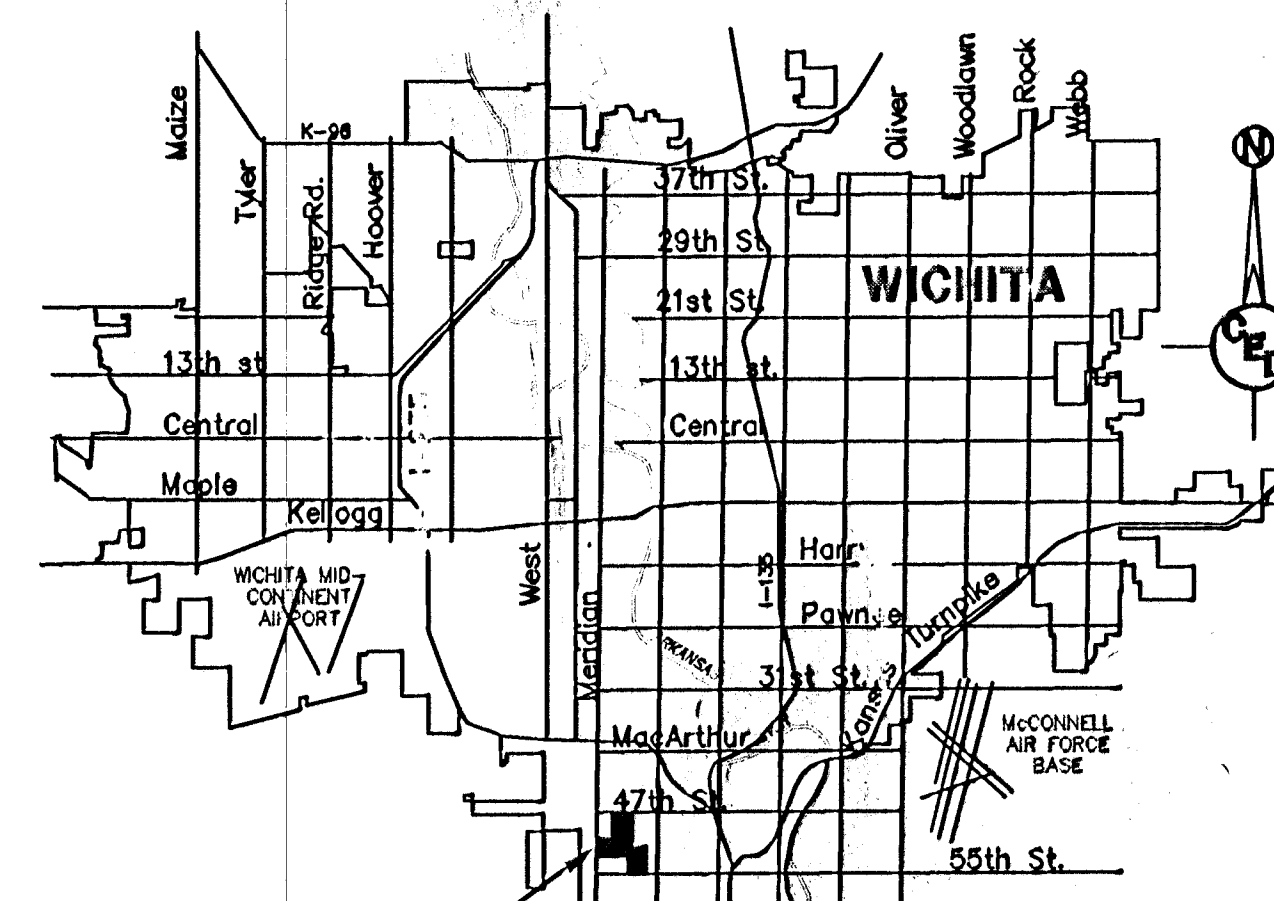


BENCHMARK #1:
City of Wichita Std. Disg 30' W. & 44' N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
"X" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)

INDEX OF SHEETS

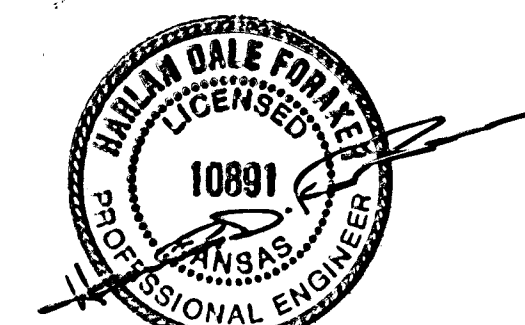
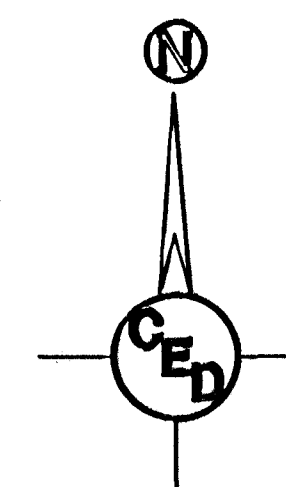
1. Title Sheet
2. Site Plan
3. Typical 24" Pavement Detail
- 4.-5. 24" Drive Paving Plans
6. Paving Lot Site Grading Plan
7. Parking Lot Control Plan No. 1
8. Parking Lot Control Plan No. 2
9. CIP Details
10. Area Inlet Detail
11. Pavement Marking Plan
12. Pavement Marking Details
13. Irrigation Sleeve Layout Plan
- 14.-16. 24" Drive Cross Sections



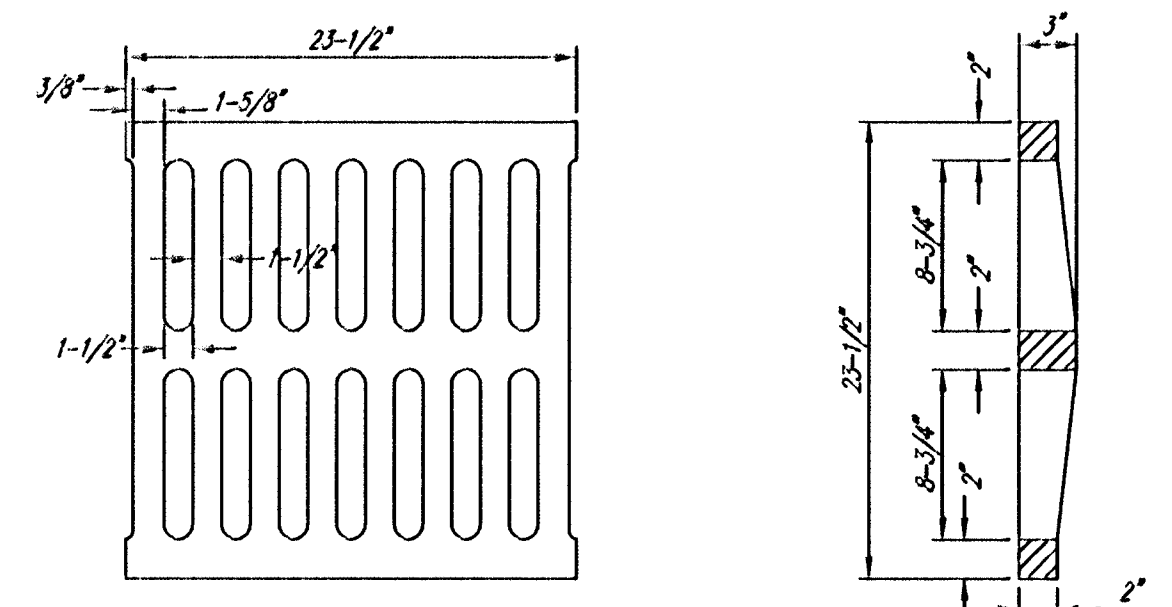
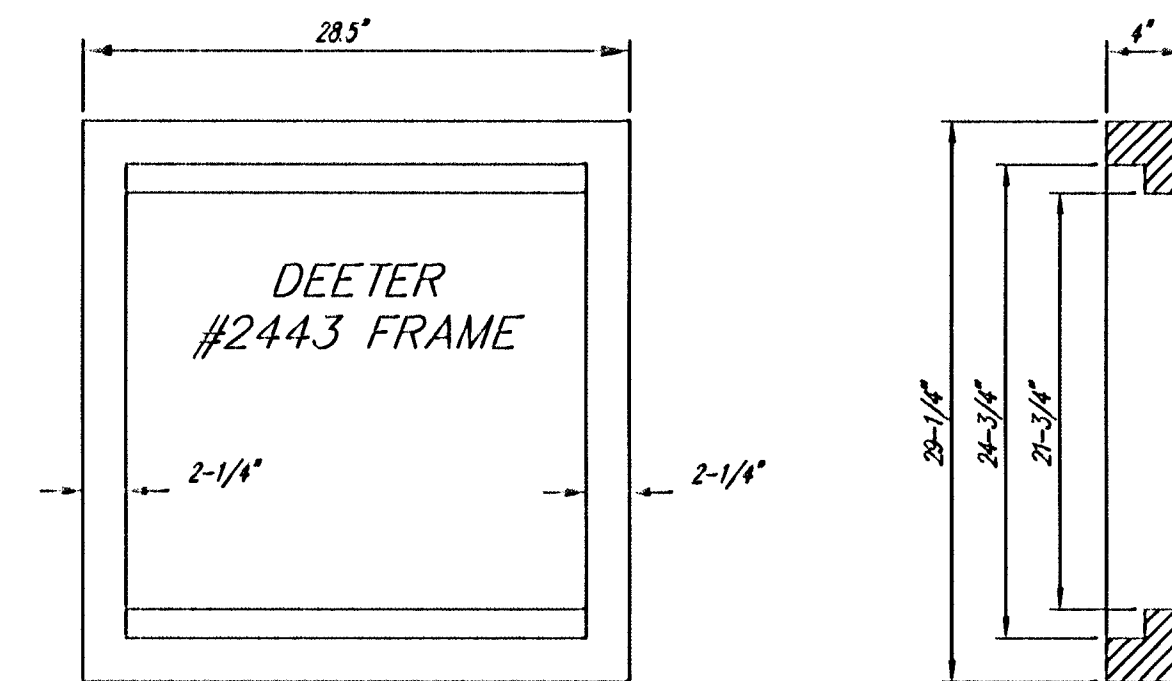
PROJECT LOCATION

LOCATION MAP

PROJECT LOCATED IN THE
S.W.1/4, SEC. 19, T.28S., R.1E,
SEDGWICK COUNTY, KANSAS

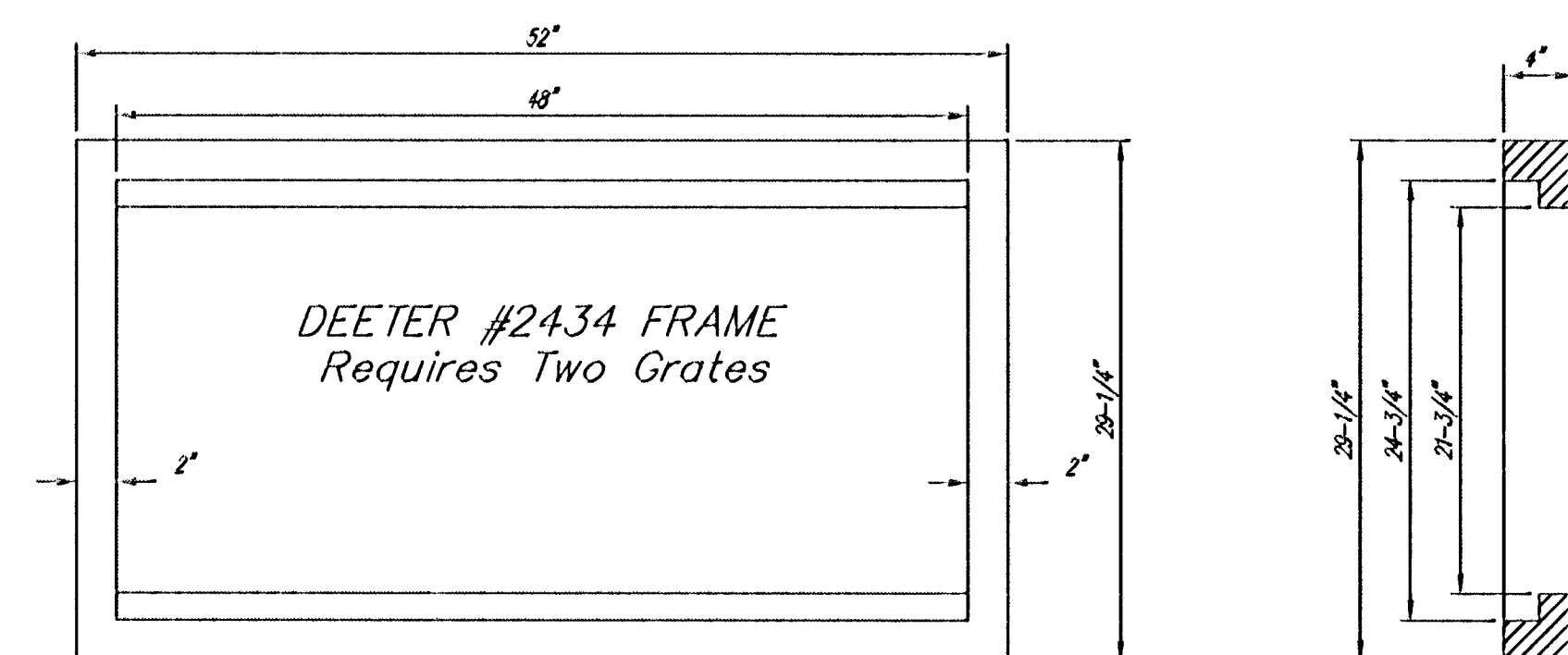


C.O.W. PROJ. NO.: 472 83603 (785028)	
CERTIFIED ENGINEERING DESIGN, P.A.	
810 WEST DOUGLAS, SUITE C	SHEET
WICHITA, KANSAS 67203	1
PH: (316) 262-8808	TOTAL 16
FAX: (316) 262-1889	



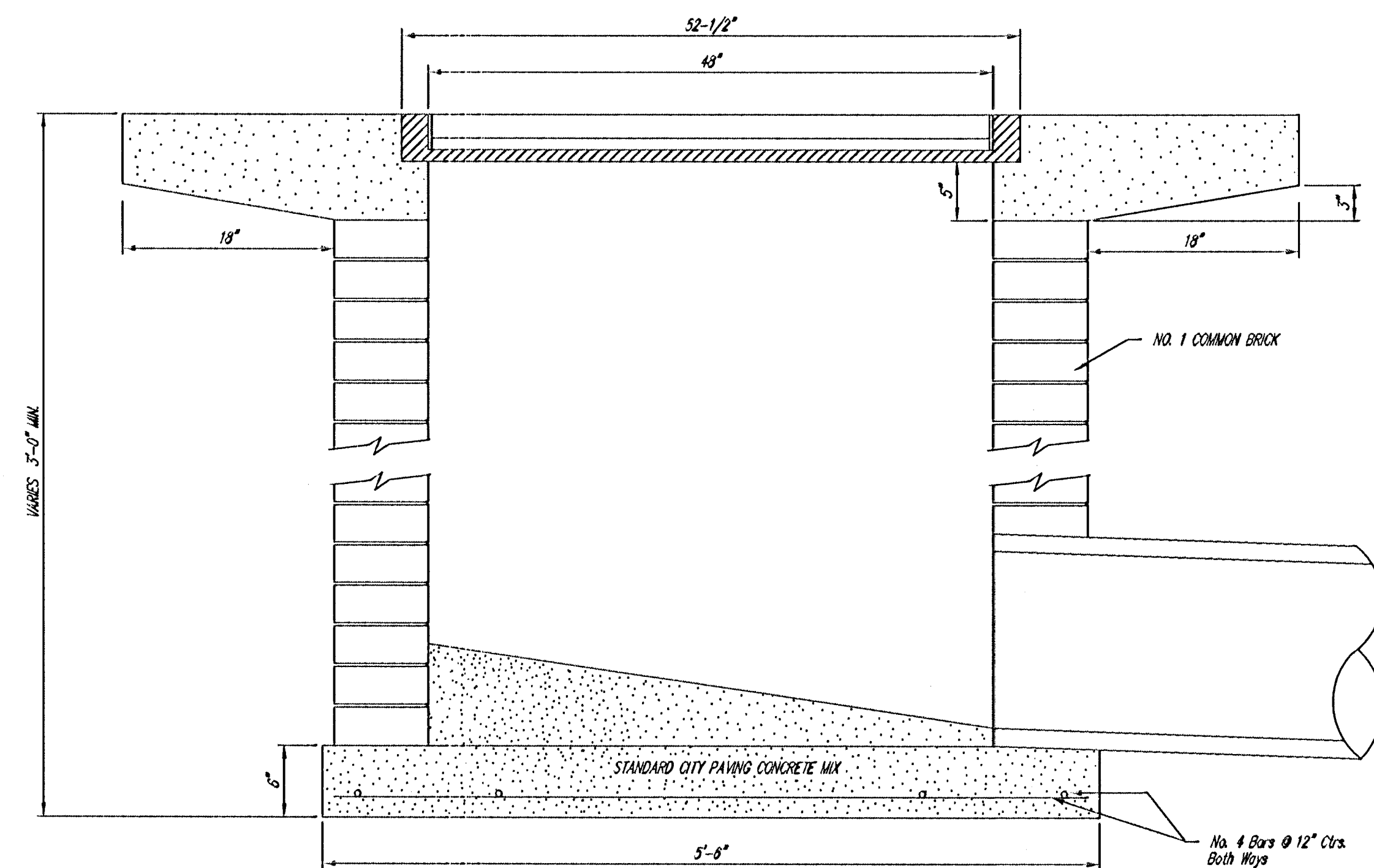
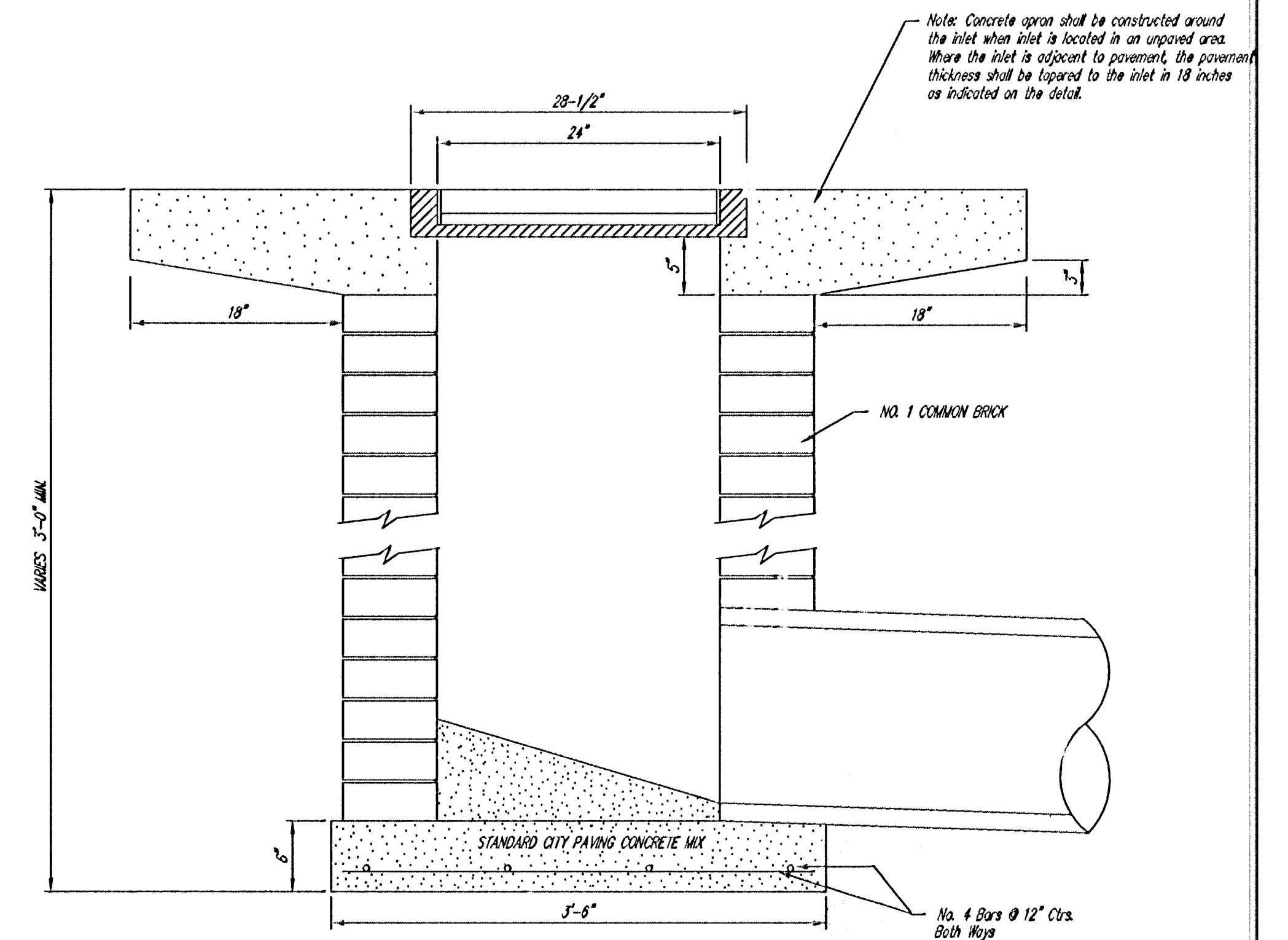
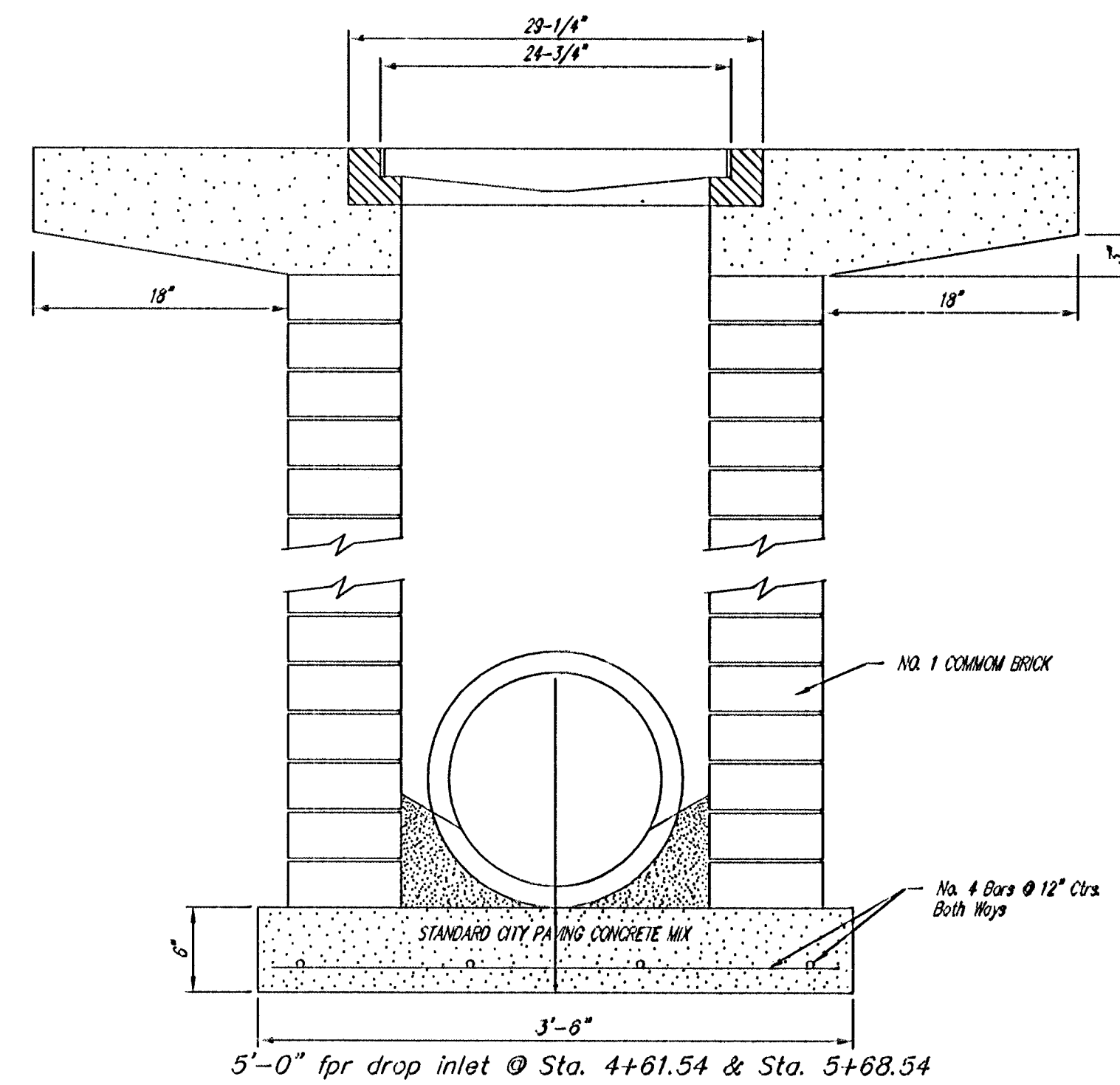
DEETER #2433 GRATE

24" x 24" Frame and Grate Detail

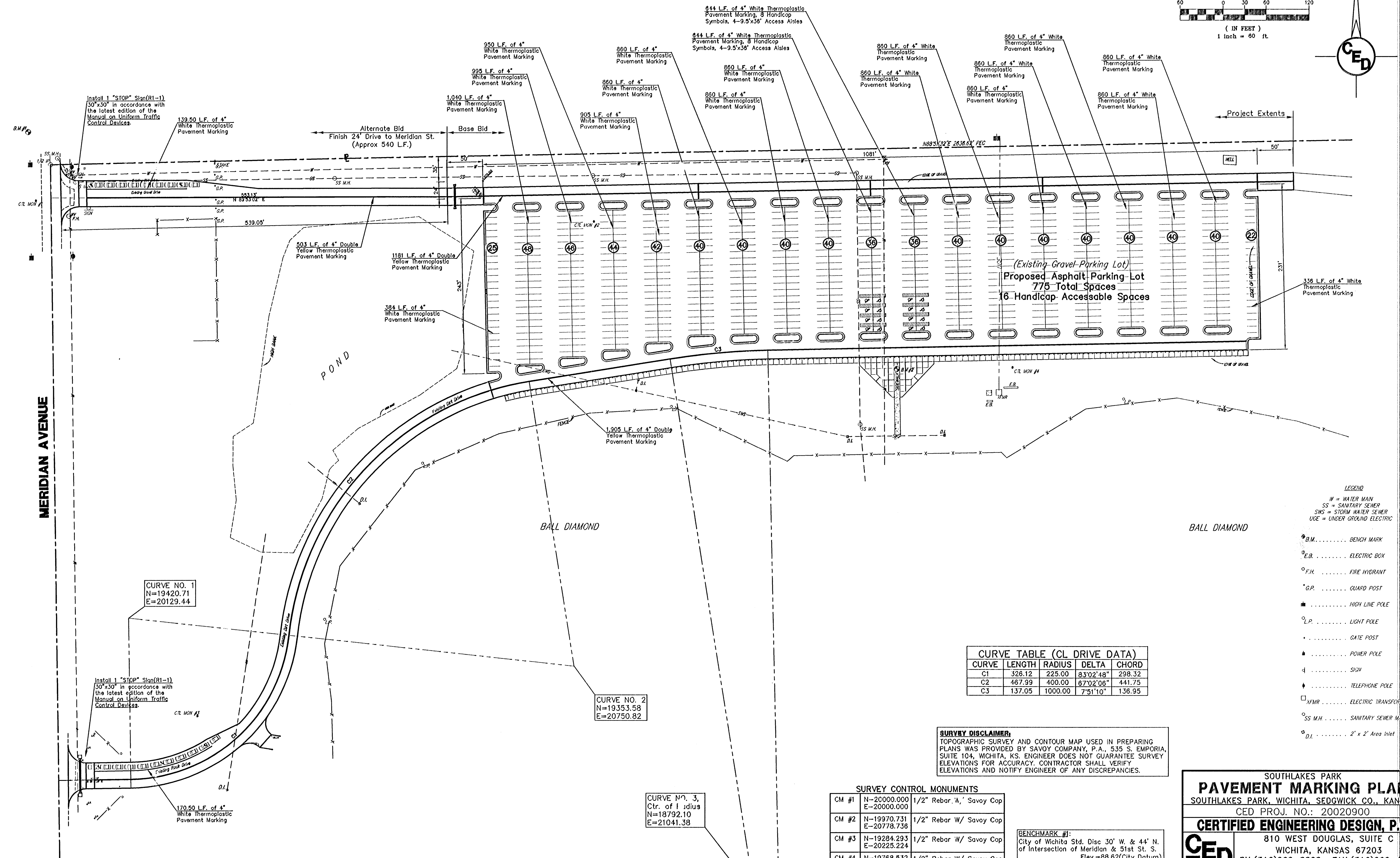
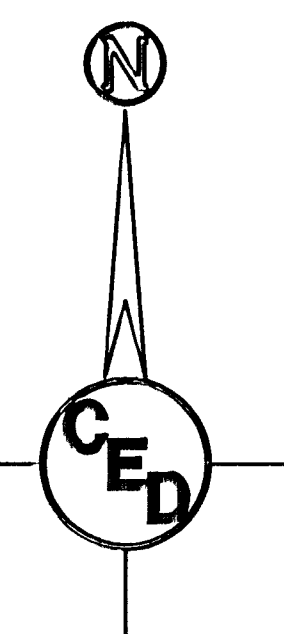
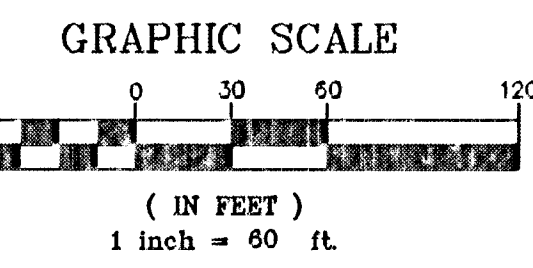


Double 24" x 24" Frame Detail

NOTE: Grates shall be imprinted on the top surface with "CITY OF WICHITA" using letters at least 1" in height. Other marking methods may be approved by the engineer.



SOUTHLAKES PARK IMPROVEMENTS			
AREA INLET DETAILS			
WICHITA, KANSAS			
CED PROJ. NO.: 20020900			
CERTIFIED ENGINEERING DESIGN, P.A.			
810 WEST DOUGLAS, SUITE C			
WICHITA, KANSAS 67203			
PH.(316)262-8808 FAX.(316)262-1669			
DESIGNED: HDF	SCALE: NTS	SHEET 10	TOTAL 16
DRAWN: COW	DATE: 2/02		
CHECKED: HDF	CED FILE: areainlet.dwg		



CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'48"	298.32
C2	467.99	400.00	67°02'06"	441.75
C3	137.05	1000.00	7°51'10"	136.95

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

SURVEY CONTROL MONUMENTS

CM #1	N-20000.000 E-20000.000	1/2" Rebar W/ Savoy Cop
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CM #5	N-20106.150 E-21914.570	1/2" Rebar W/ Savoy Cop

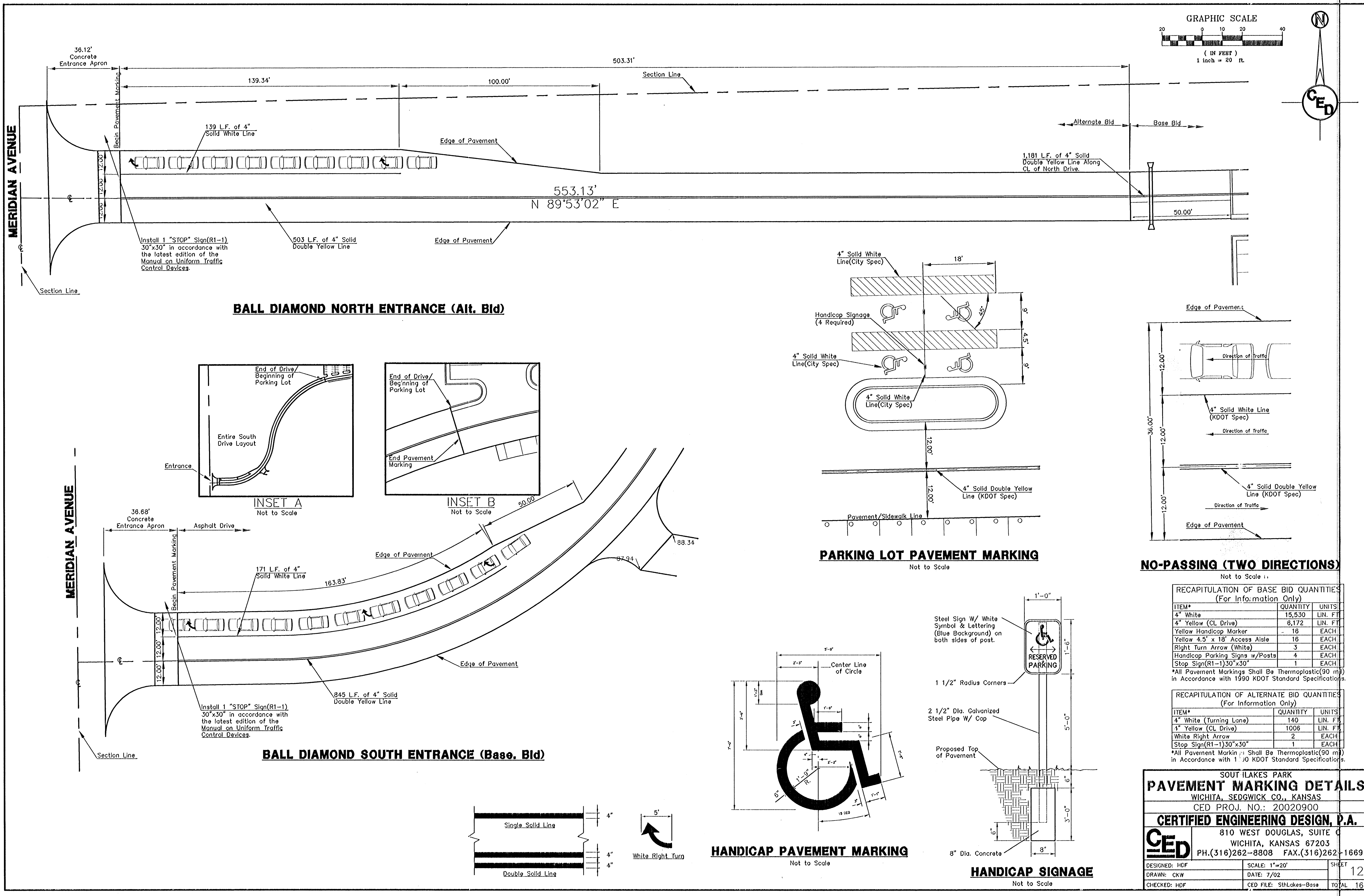
BENCHMARK #1:
City of Wichita Std. Disc 30" W. & 44" N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
"L" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)

- LEGEND**
- W = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. BENCH MARK
 - E.B. ELECTRIC BOX
 - F.H. FIRE HYDRANT
 - G.P. GUARD POST
 - H.L.P. HIGH LINE POLE
 - L.P. LIGHT POLE
 - G.P. GATE POST
 - P.P. POWER POLE
 - SIGN SIGN
 - T.P. TELEPHONE POLE
 - TRANS. ELECTRIC TRANSFORMER
 - S.S.M.H. SANITARY SEWER MANHOLE
 - D.I. 2' x 2' Area Inlet

**SOUTHLAKES PARK
PAVEMENT MARKING PLAN**
SOUTHLAKES PARK, WICHITA, SEDGWICK CO., KANSAS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF	SCALE: 1"=60'	SHEET
DRAWN: CKW	DATE: 7/02	11
CHECKED: HDF	CED FILE: SthLakes-Base.dwg	TOTAL 16



Install 2-4"x40 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 24' Drive(Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=80 L.F.

Install 2-4"x43 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits between Curbed Islands(Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length per crossing=88 L.F. Total Pipe Length for all 35 Island crossings=3,010.00 L.F.

Install 2-4"x40 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 24' Drive(Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=80 L.F.

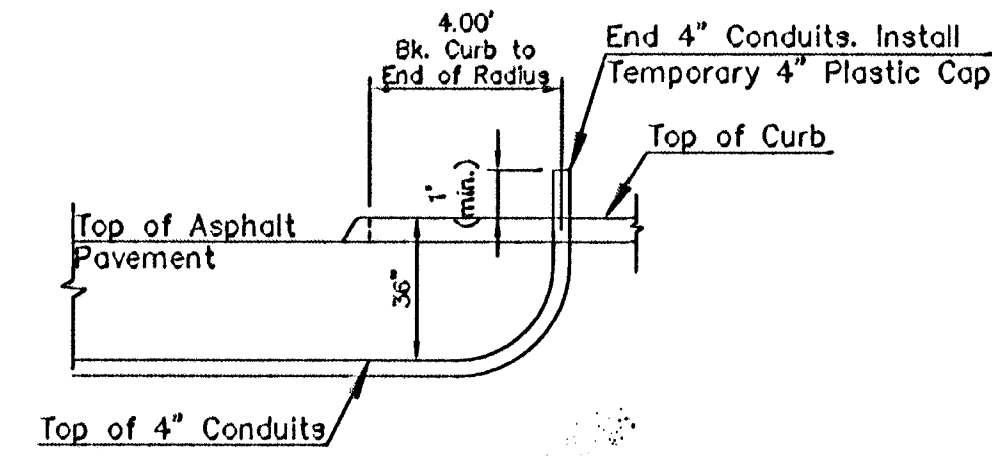
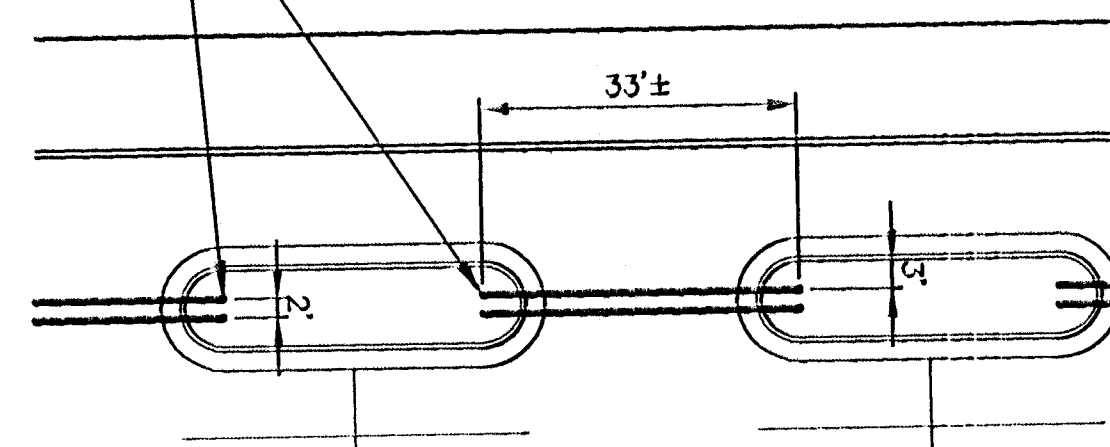
Install 2-4"x20 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 8' Walk(Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=40 L.F.

Install 2-4"x20 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 8' Walk(Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=40 L.F.

Install 2-4"x40 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits centered over 24' Drive(Typ.). Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=80 L.F.

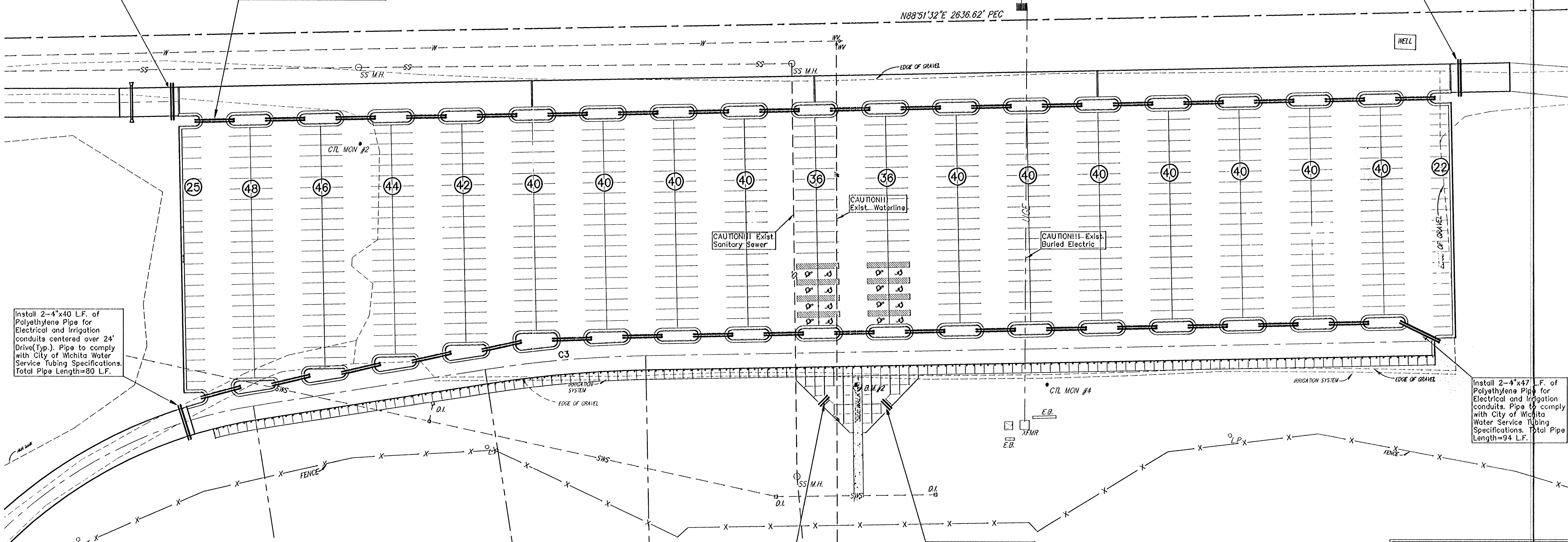
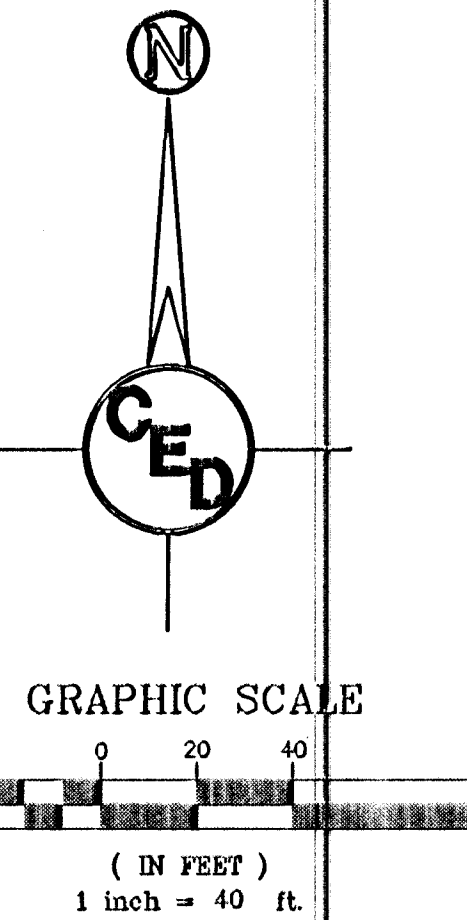
Install 2-4"x47 L.F. of Polyethylene Pipe for Electrical and Irrigation conduits. Pipe to comply with City of Wichita Water Service Tubing Specifications. Total Pipe Length=94 L.F.

Start and stop conduit at the end of curb radius.



IRRIGATION LAYOUT DETAILS

NOTE: FOR CONDUIT LOCATIONS, SEE SURVEY CONTROL PLAN SHEETS 7-8.



CURVE TABLE (CL DRIVE DATA)				
CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'18"	298.32
C2	487.99	400.00	67°02'08"	441.75
C3	137.05	1000.00	7°51'10"	136.95

RECAPITULATION OF BASE BID QUANTITIES (For Information Only)		
ITEM	QUANTITY	UNITS
4" Polyethylene Pipe	3,425	LIN. FT.
4" Temporary Plastic Cops	184	EACH

BENCHMARK #1:
City of Wichita Std. Disc 30" W. & 44" N.
at Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
"LP" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.55(City Datum)

LEGEND	
WM	WATER MAIN
SS	SANITARY SEWER
SWS	STORM WATER SEWER
UGE	UNDER GROUND ELECTRIC
B.M.	BENCH MARK
E.B.	ELECTRIC BOX
F.H.	FIRE HYDRANT
W.V.	WATER VALVE
G.P.	GUARD POST
H.L.P.	HIGH LINE POLE
D.I.	2' x 2' Area Inlet
L.P.	LIGHT POLE
G.P.	GATE POST
P.P.	POWER POLE
S	SIGN
T.P.	TELEPHONE POLE
XTMR	ELECTRIC TRANSFORMER
SS M.H.	SANITARY SEWER MANHOLE

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

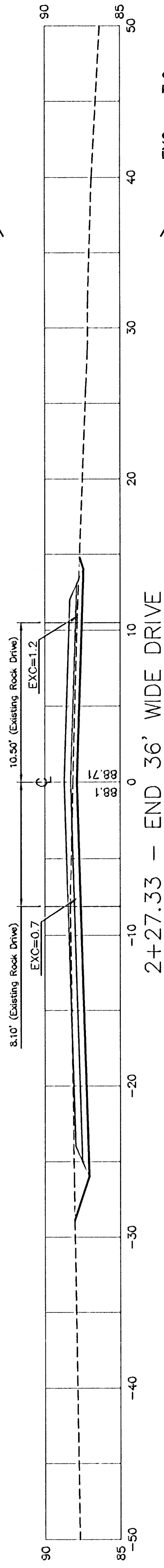
IRRIGATION SLEEVE LAYOUT
WICHITA, SEDGWICK CO., KANSAS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF
DRAWN: CKW
CHECKED: HDF

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DATE: 7/02
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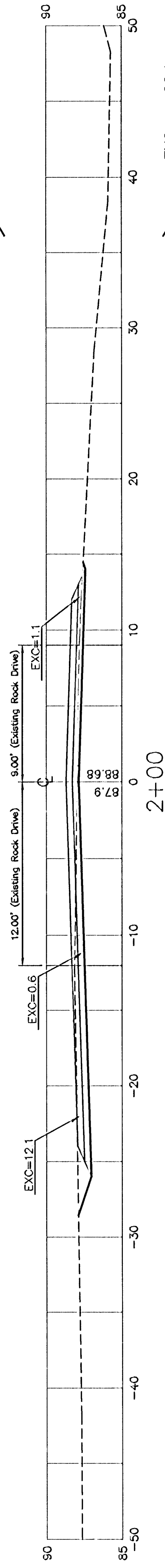
SHEET
13
TOTAL 16

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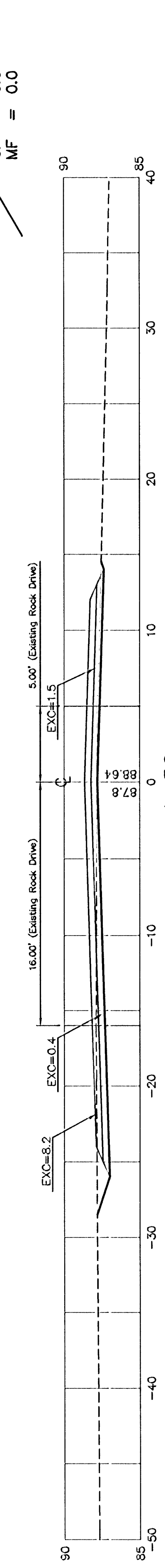


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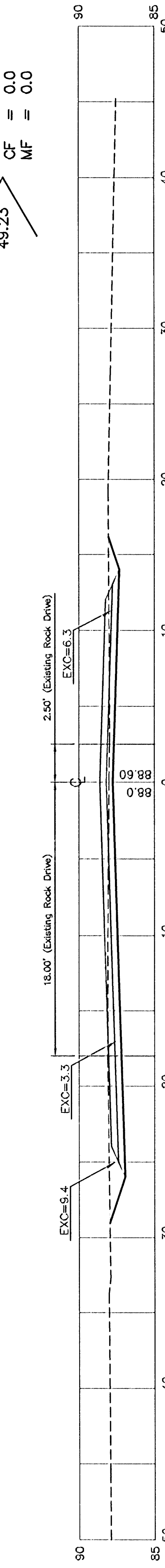
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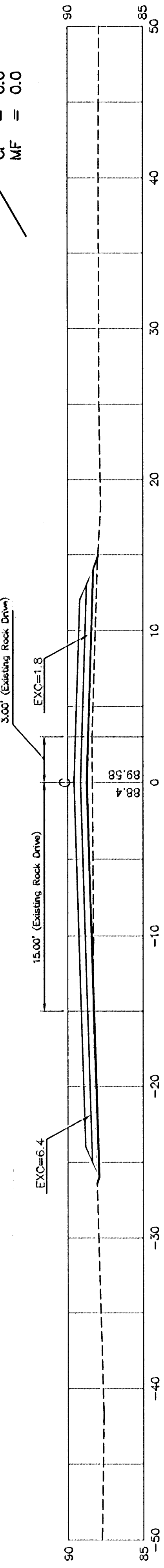


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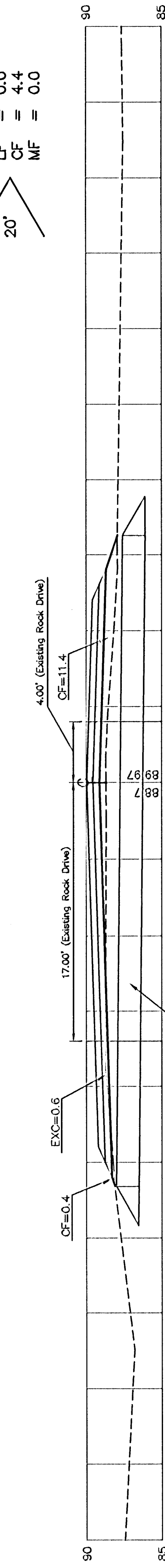


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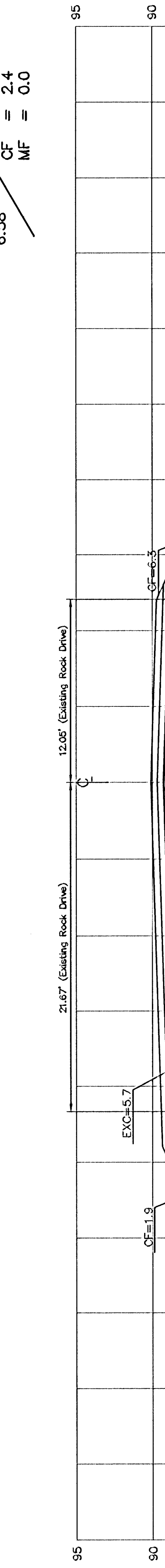


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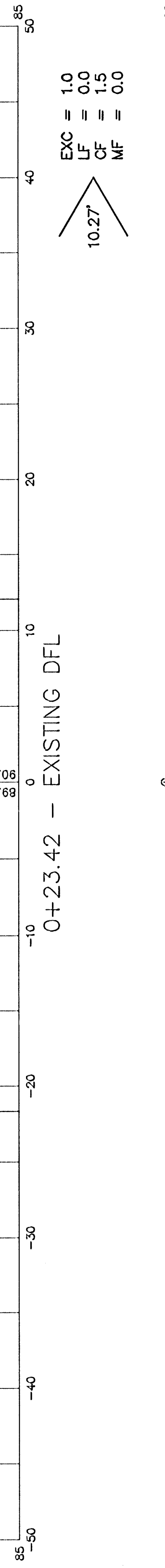


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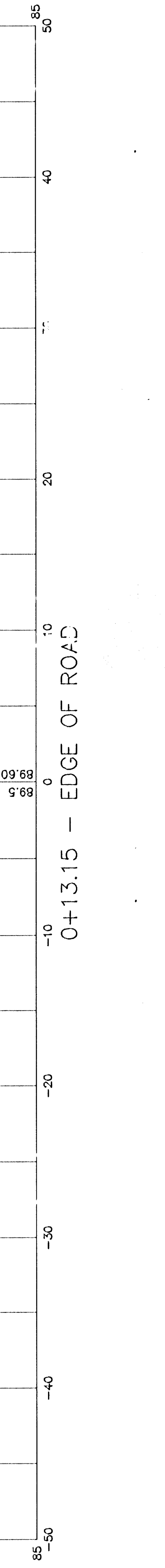
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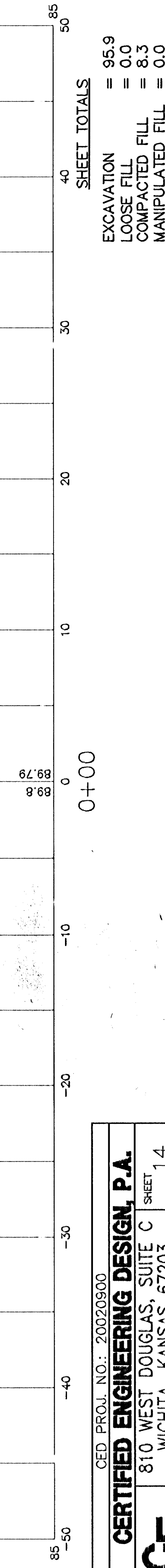
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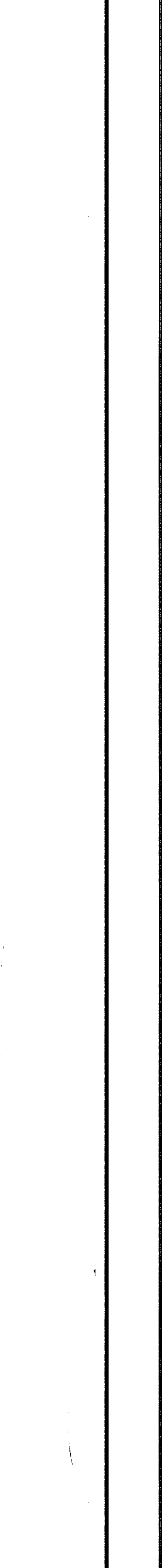
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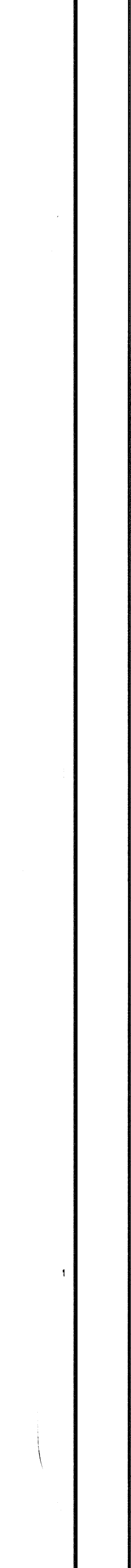
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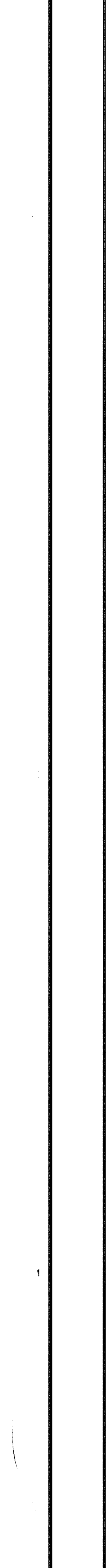
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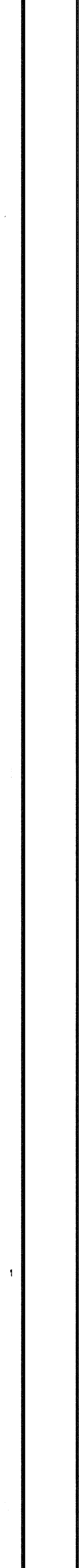
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CF = 1.5
MF = 0.0



EXC = 1.0
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CF = 1.5
MF = 0.0



EXC = 1.0
LF = 0.0
CF = 1.5
MF = 0.0



EXC = 1.0
LF = 0.0
CF = 1.5
MF = 0.0



EXC = 1.0
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CF = 1.5
MF = 0.0

EXC = 1.0
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MF = 0.0

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MF = 0.0

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MF = 0.0

EXC = 1.0
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EXC = 1.0
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CF = 1.5
MF = 0.0

EXC = 1.0
LF = 0.0
CF = 1.5
MF = 0.0

EXC = 1.0
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CF = 1.5
MF = 0.0

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LF = 0.0
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CF = 1.5
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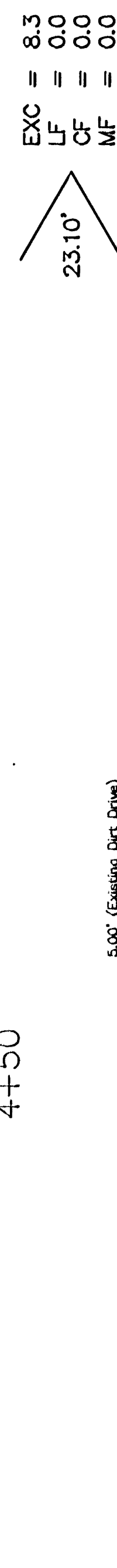
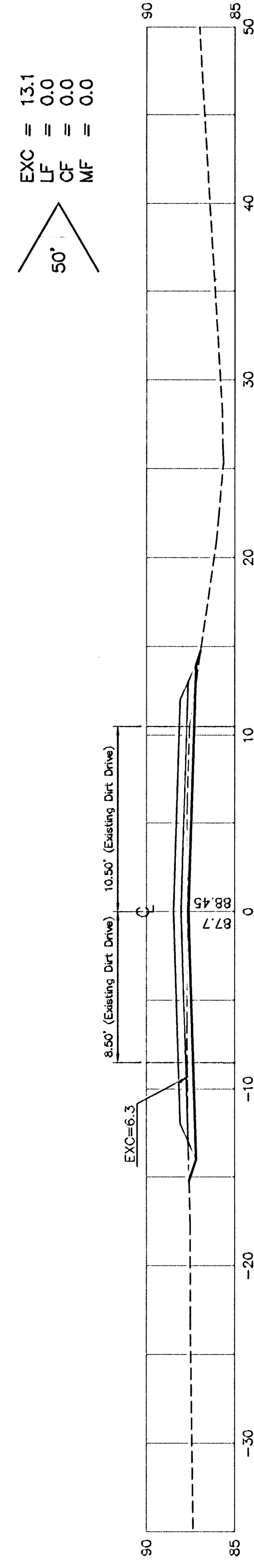
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MF = 0.0

EXC = 1.0
LF = 0.0
CF = 1.5
MF = 0.0

EXC = 1.0
LF = 0.0
CF = 1.5
MF = 0.0



CED PROJ. NO.: 20020900

CED PROJ. NO.: 20020900

CERTIFIED ENGINEERING DESIGN, P.A.

810 WEST DOUGLAS, SUITE C
WICHITA KANSAS 67207
SHEET 15

WICHITA, KANSAS 67203	15
-----------------------	----

PH: (316) 262-8808

FAX: (316) 767-1669

SHEET 15

51

TOTAL	76
-------	----

2+80.24 - BEGIN 24' WIDE DRIVE

SHEET TOTALS

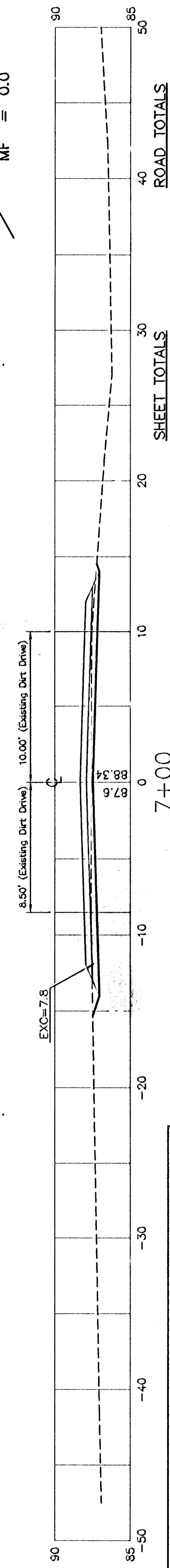
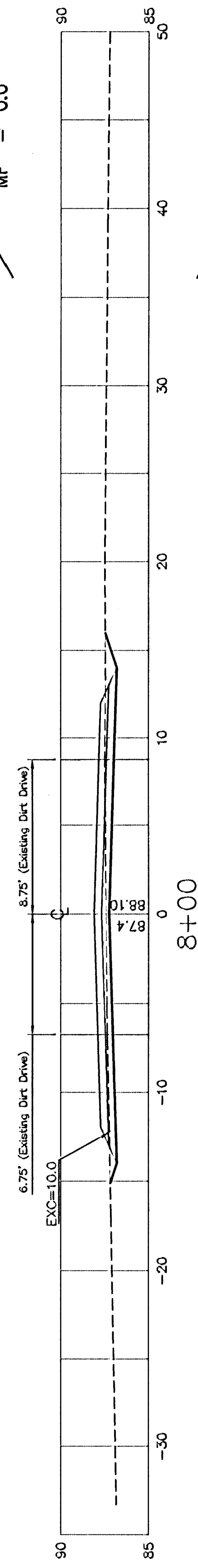
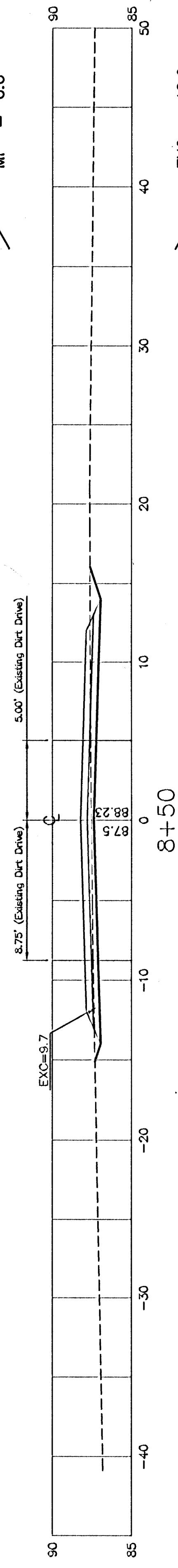
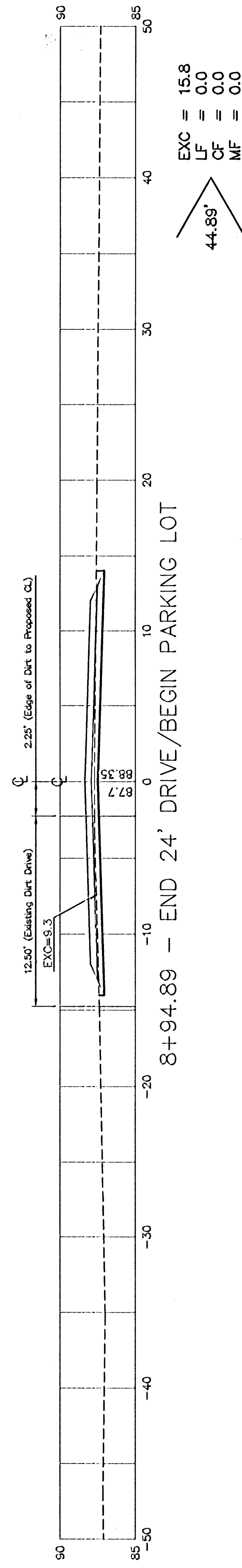
EXCAVATION	= 110.3
LOOSE FILL	= 0.0

LOOSE FILL = 0.0

COMPACTED FILL	= 0.0
MANIPULATED FILL	= 0.0

MANIPULATED FILL = 0.0

~~24' DRIVE~~




CERTIFIED ENGINEERING DESIGN, P.A.
 CED PROJ. NO.: 20020800
 810 WEST DOUGLAS, SUITE C
 WICHITA, KANSAS 67203
 PH: (316) 262-8808
 SHEET 16
 TOTAL 16

PLAN LABELS DEFINITION TABLE
PW = POINT OF VERTICAL INTERSECTION

Removed existing crushed rock base (Approx. 433 S.Y.) outside crushed rock base limits for new drive. (This work will not be paid for separately but will be considered subsidiary to other items in the contract.)

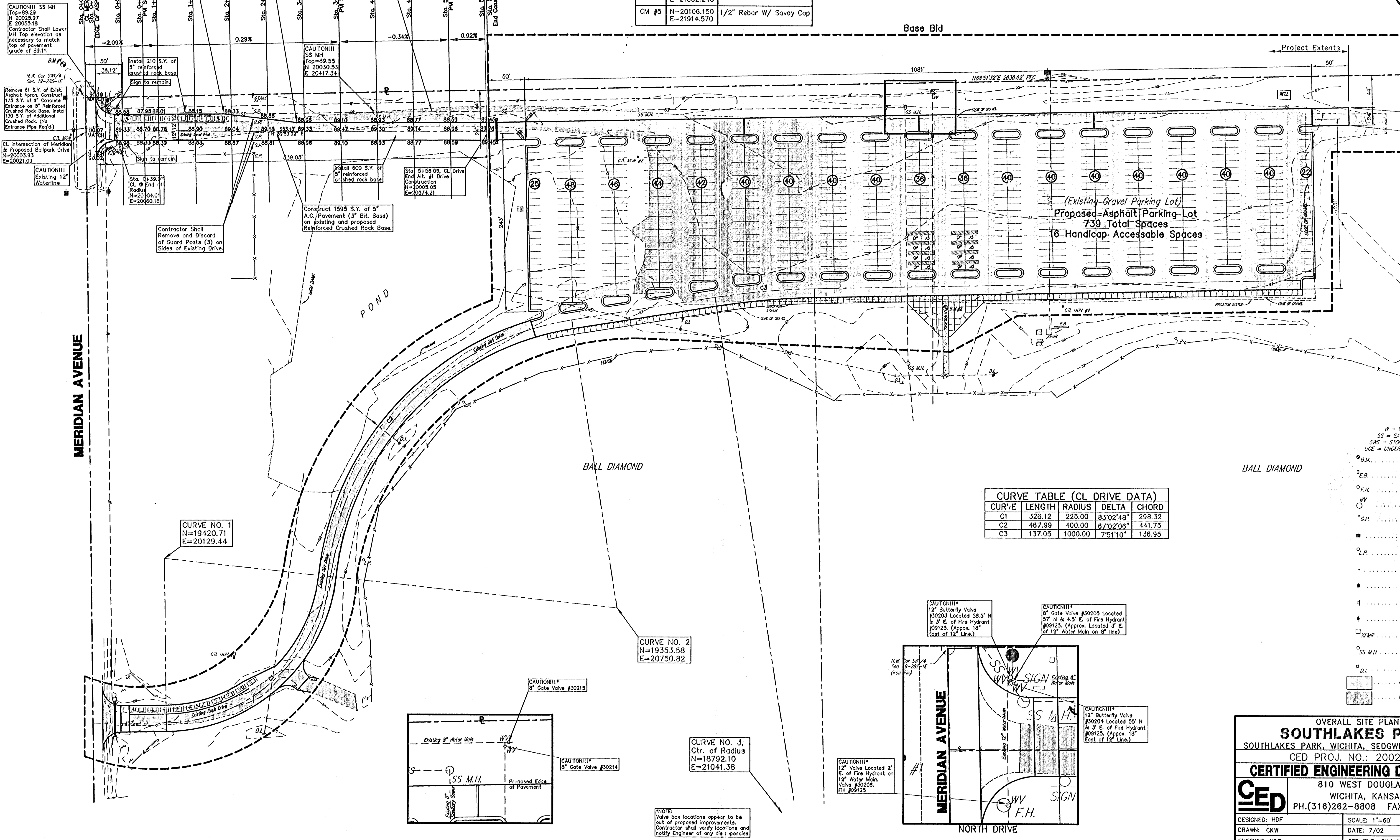
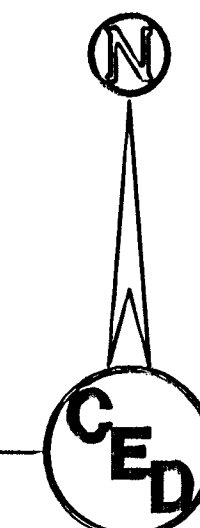
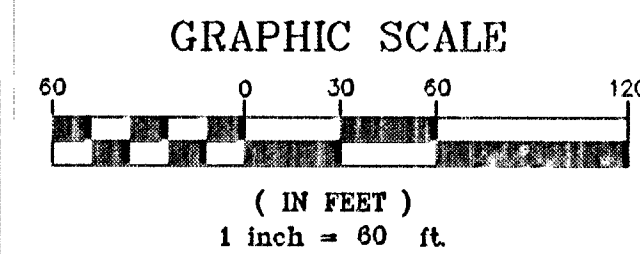
SURVEY CONTROL MONUMENTS

CM #1	N=20000.000 E=20000.000	1/2" Rebar W/ Savoy Cop
CM #2	N=19970.731 E=20778.738	1/2" Rebar W/ Savoy Cop
CM #3	N=19284.293 E=20225.224	1/2" Rebar W/ Savoy Cop
CM #4	N=19768.532 E=21382.240	1/2" Rebar W/ Savoy Cop
CM #5	N=20106.150 E=21914.570	1/2" Rebar W/ Savoy Cop

BENCHMARK #1:
City of Wichita Std. Disc 30" W. & 44" N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
"C" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)

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CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'48"	298.32
C2	467.99	400.00	67°02'08"	441.75
C3	137.05	1000.00	7°51'10"	136.95

- LEGEND
- WM = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. = BENCH MARK
 - E.B. = ELECTRIC BOX
 - F.H. = FIRE HYDRANT
 - WV = WATER VALVE
 - G.P. = GUARD POST
 - H.L.P. = HIGH LINE POLE
 - L.P. = LIGHT POLE
 - G.P. = GATE POST
 - P.P. = POWER POLE
 - S. = SIGN
 - T.P. = TELEPHONE POLE
 - W.M. = ELECTRIC TRANSFORMER
 - SS M.H. = SANITARY SEWER MANHOLE
 - D.I. = 2' x 2' Area Inlet
 - EXISTING DIRT DRIVE
 - EXISTING CRUSHED ROCK BASE

OVERALL SITE PLAN
SOUTHLAKES PARK
SOUTHLAKES PARK, WICHITA, SEDGWICK CO., KANSAS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-669

DESIGNED: HDF
DRAWN: CKW
CHECKED: HDF

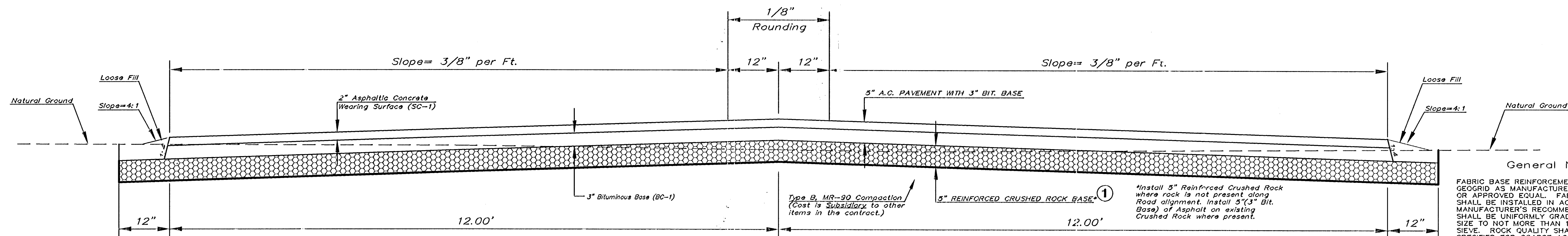
SCALE: 1"=60'
DATE: 7/02
CED FILE: SthLakes-Base.dwg

SHEET
2
TOTAL 16

NOTE:
Valve box locations appear to be out of proposed improvements. Contractor shall verify locations and notify Engineer of any discrepancies.

TYPICAL PAVEMENT DETAILS

TRANSVERSE SECTION



General Notes

FABRIC BASE REINFORCEMENT SHALL BE B X 1100 GEOTEXTILE AS MANUFACTURED BY TENSAR CORPORATION OR APPROVED EQUAL. FABRIC BASE REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CRUSHED ROCK SHALL BE UNIFORMLY GRADED FROM 1-1/2" MAXIMUM SIZE TO NOT MORE THAN 10% PASSING A NO. 200 SIEVE. ROCK QUALITY SHALL BE THE SAME AS SPECIFIED FOR COARSE AGGREGATE FOR CONCRETE MIXES.

ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PRIOR TO PLACEMENT OF ASPHALT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

A TACK COAT OF EMULSIFIED ASPHALT (SC-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.

BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

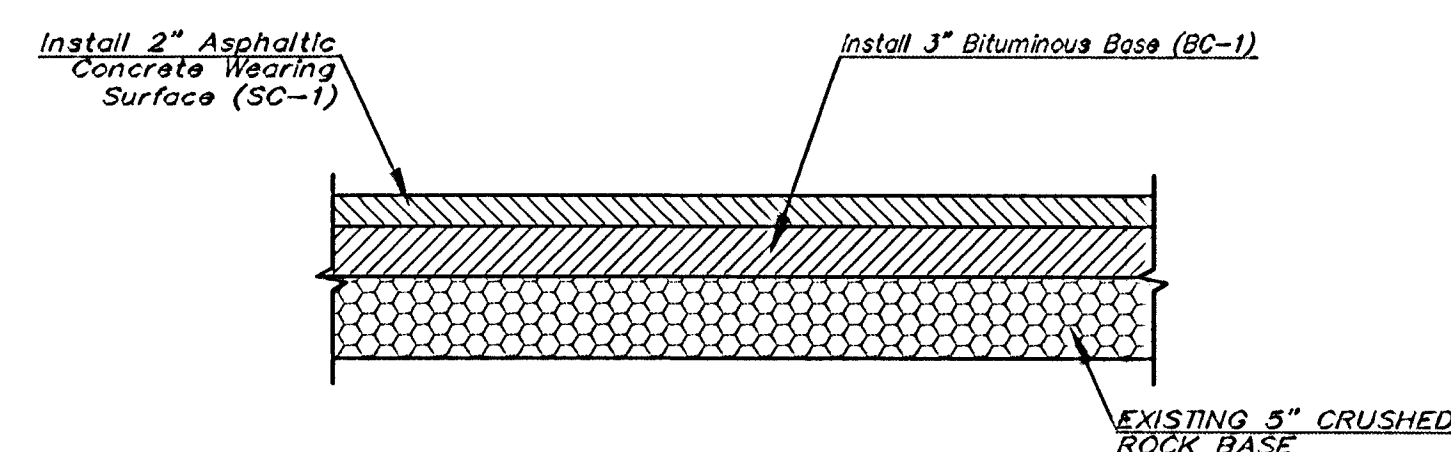
CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

THE ASPHALTIC CONCRETE PAVEMENT BETWEEN THE COMBINED CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE).

24' DRIVE PAVEMENT DETAIL

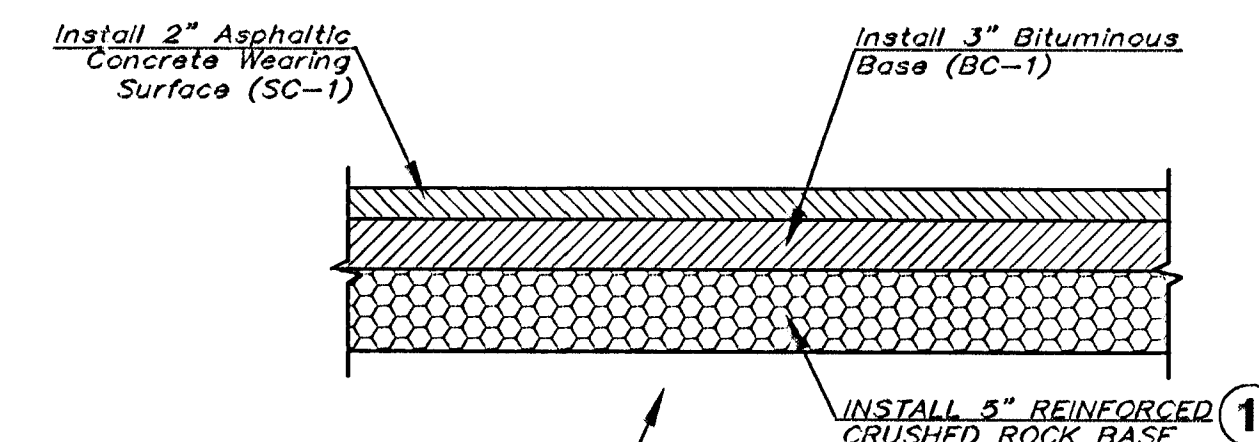
Sta. 0+13.15 to Sta. 8+94.89 (Base Bid)
Sta. 0+14.06 to Sta. 5+53.13 (Alternate #1 Bid)

NOTE: EXCAVATION HAS NOT BEEN COMPUTED FOR INSTALLATION OF 5" REINFORCED CRUSHED ROCK BASE IN THE AREAS OF PROPOSED PARKING LOT AND DRIVE ALTERNATE #1 WHERE CRUSHED ROCK BASE DOES NOT CURRENTLY EXIST. EXCAVATION IN THESE AREAS WILL NOT BE PAID FOR SEPARATELY. COST FOR EXCAVATION IN THESE AREAS SHALL BE CONSIDERED "SUBSIDIARY" TO THE UNIT PRICE BID FOR "5" REINFORCED CRUSHED ROCK BASE" WITHIN THESE AREAS.



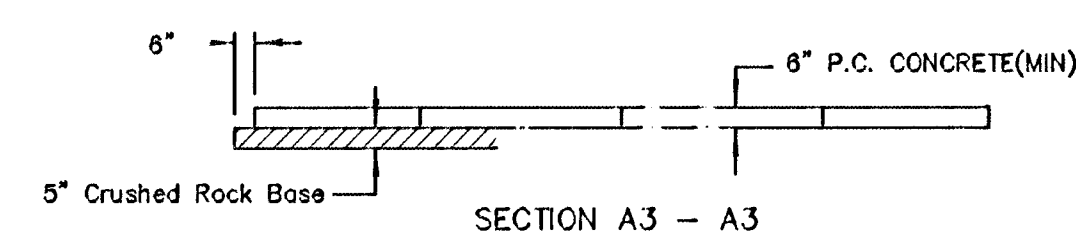
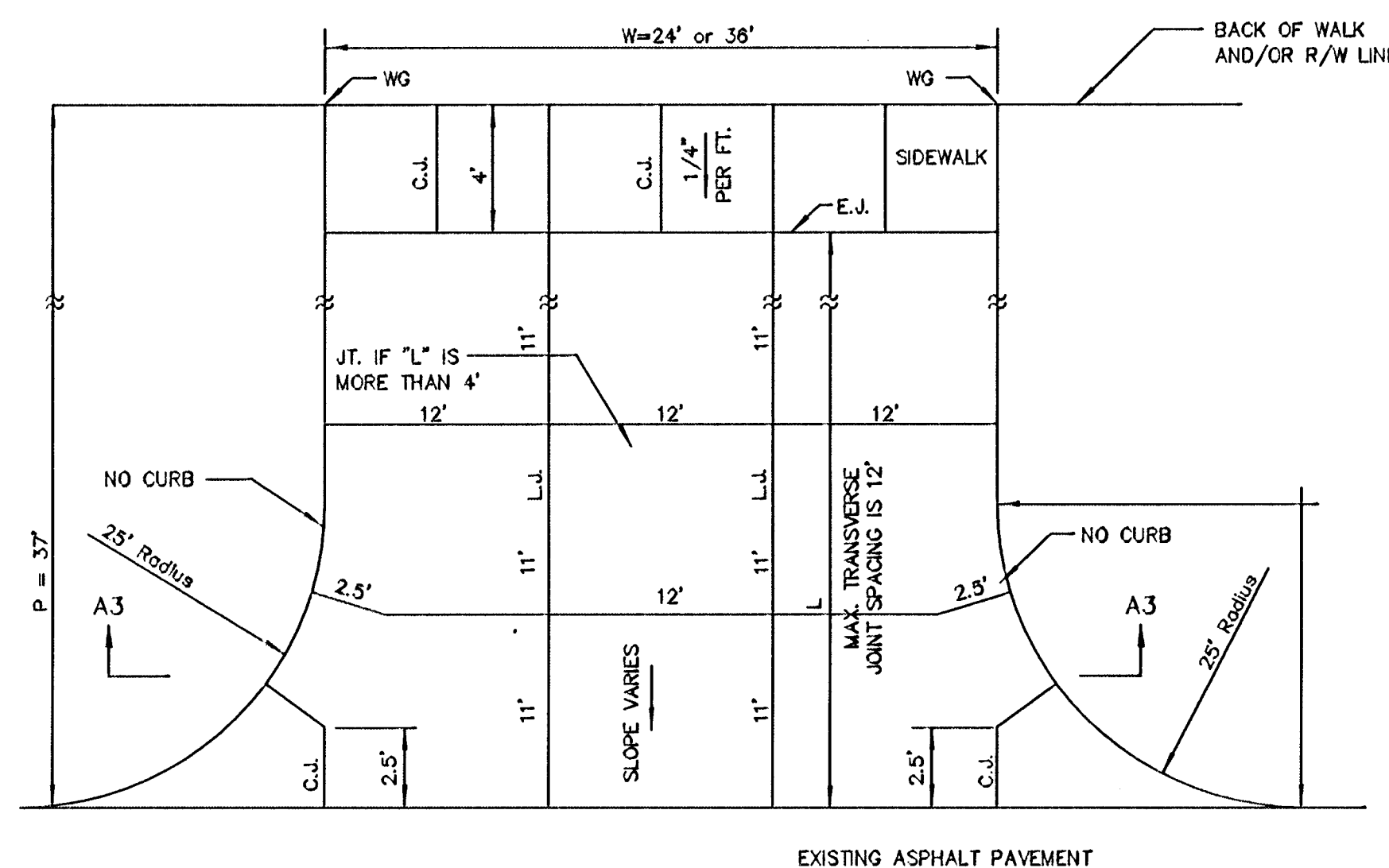
PARKING LOT ASPHALT PAVEMENT DETAIL

(FOR AREAS WITH EXISTING CRUSHED ROCK)



PARKING LOT ASPHALT PAVEMENT DETAIL

(FOR AREAS WITH NO EXISTING CRUSHED ROCK)

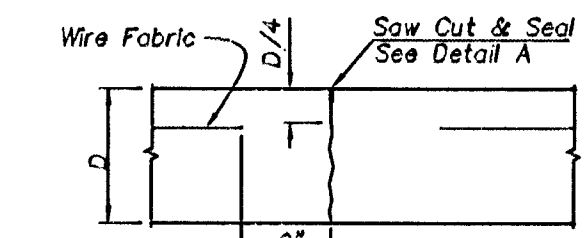
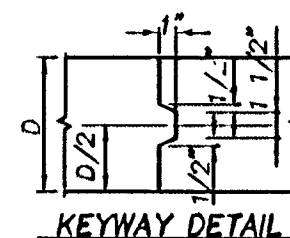


CONCRETE ENTRANCE DETAILS

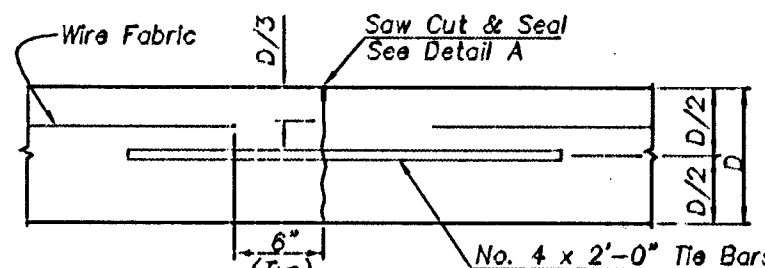
MAIN SOUTH ENTRANCE (W=36', D=6")

ENTRANCE @ STA. 2+86.45 (W=24', D=6")

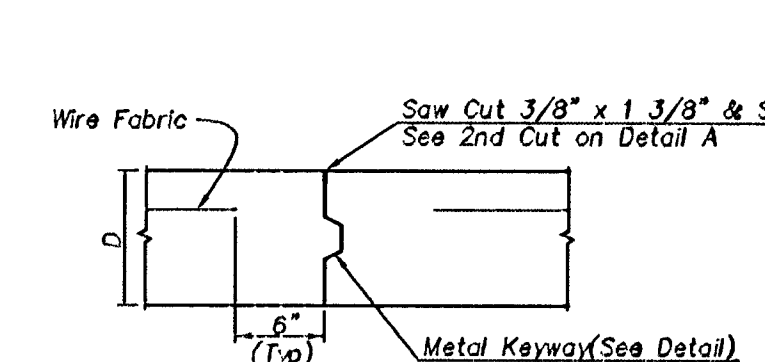
ALTERNATE #1 NORTH ENTRANCE (W=36', D=6")



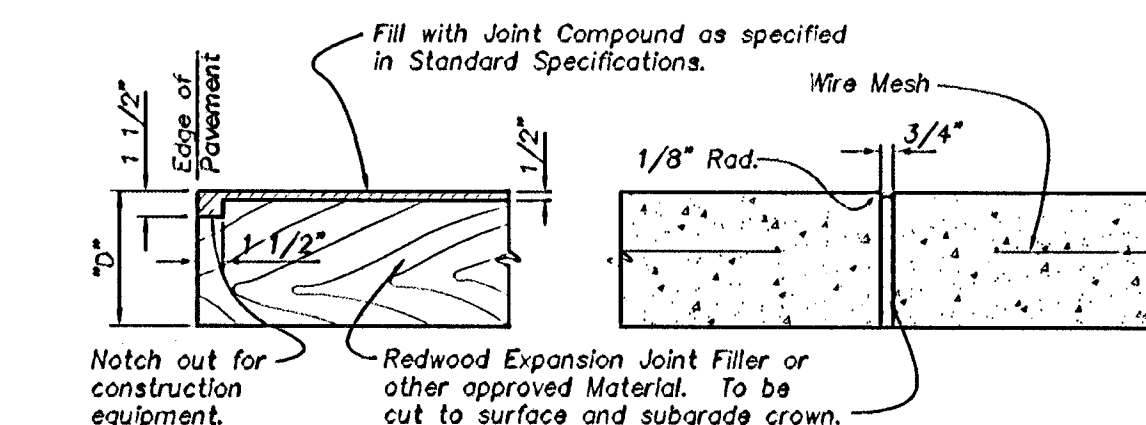
CONTRACTION JOINT DETAIL (C.J.)



CONTRACTION CONSTRUCTION JOINT (C.C.J.)

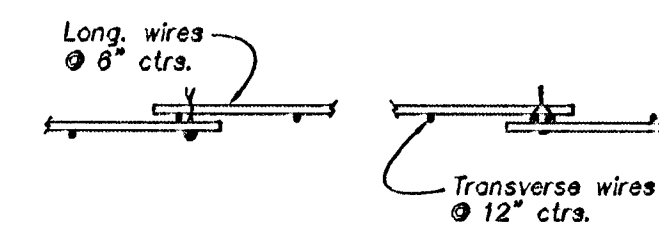


OPTIONAL CONTRACTION CONSTRUCTION JOINT (C.C.J.) (ALTERNATE C.C.J.)



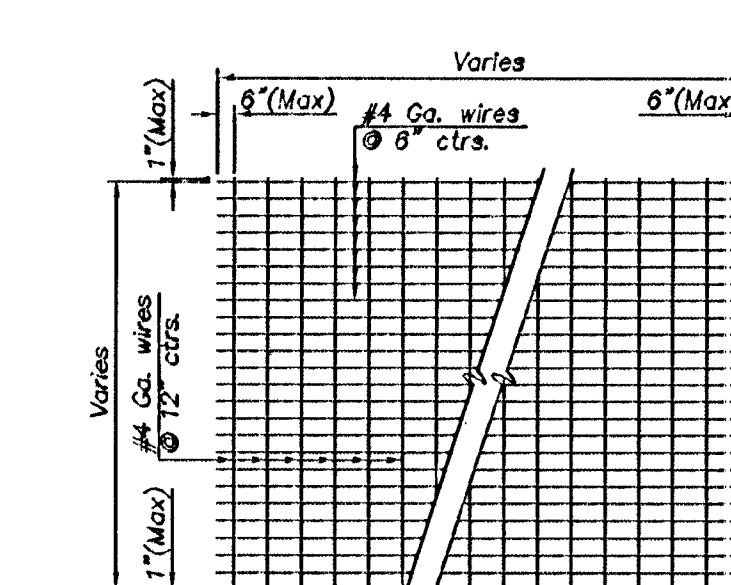
EXPANSION JOINT DETAIL

NOTE: Expansion Joint Material must be securely held in place by using Metal Stakes, Metal Pins, or by other approved methods so that when the pavement is completed the Expansion Material will be Perpendicular to the surface of the completed pavement. Concrete shall be Hand Placed on each side of the Expansion Joint Material in a manner that will preclude displacement of the Expansion Joint Material.



DETAIL OF LAP FOR WIRE MESH

NOTE: The lap shall extend beyond the first transverse wire of each sheet.
The sheets shall be wired securely at the edges and at intervals not to exceed 2'-6" for the full width of the street. Approximate weight of wire mesh = 44 lbs. per 100 sq. ft.
Other methods for fastening the sheets of wire mesh at the laps may be used with the approval of the Engineer.

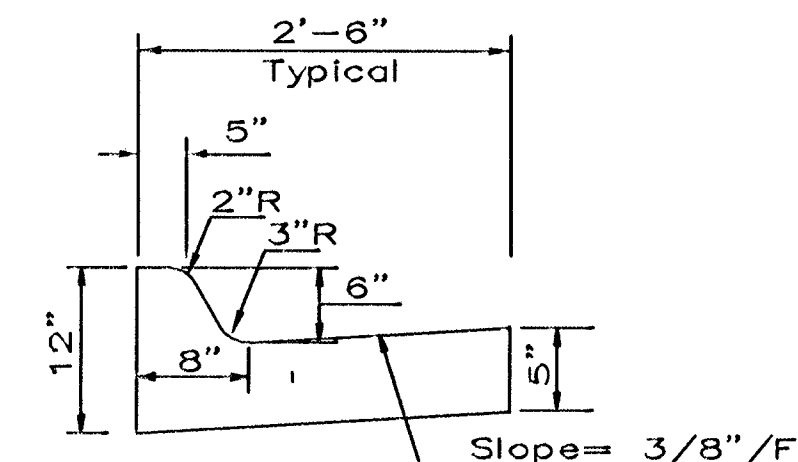


TYPICAL SHEET OF WELDED WIRE MESH

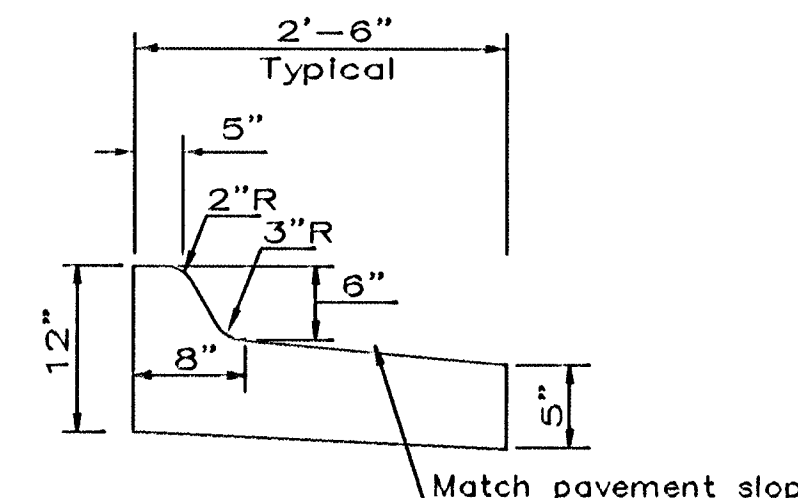
CRUSHED ROCK GRADATION REQUIREMENTS

Percent of Aggregate Retained	
1 1/2"	0
3/4"	15-60
#4	40-80
#10	74-92
P-200	4-12

Rock Quality Shall Be The Same As Specified For Coarse Aggregate For Asphalt Concrete Mixes.

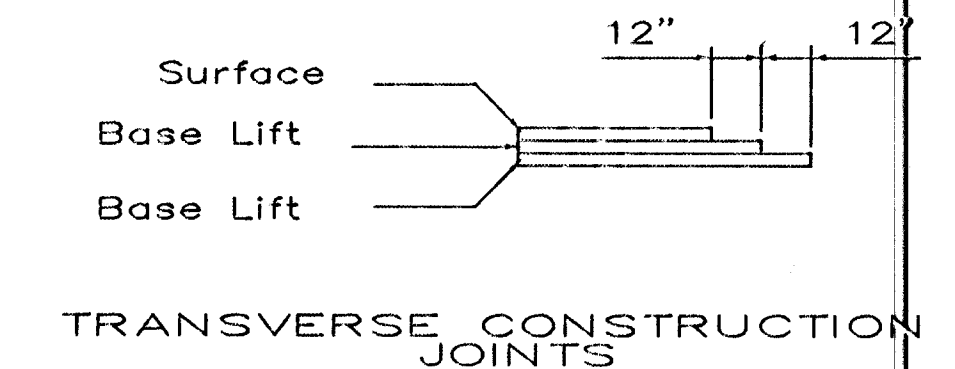


CURB & GUTTER DETAIL



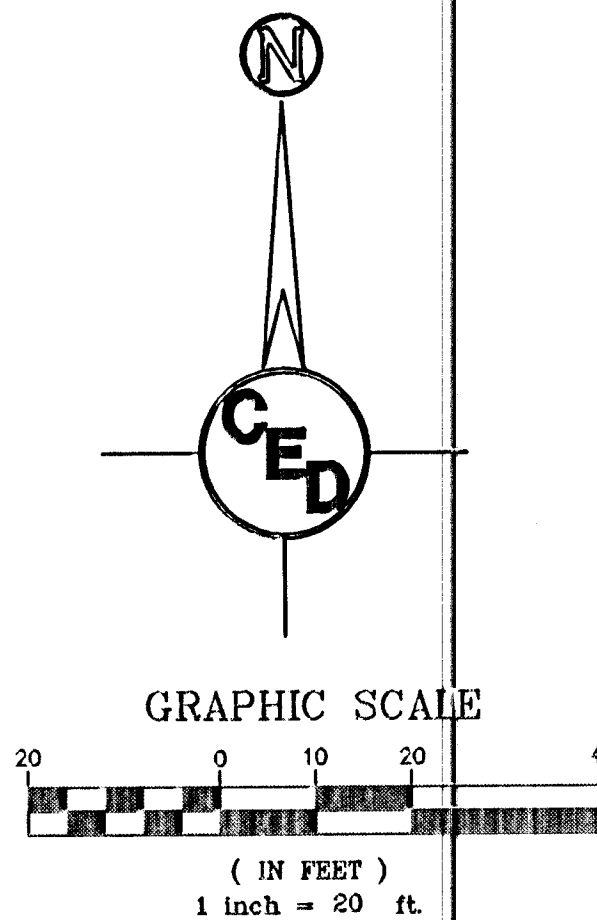
CURB & GUTTER DETAIL

(INVERTED GUTTER, DRAIN AWAY)



Transverse construction joints shall be constructed in flexible base pavements at locations where pavement joins existing flexible base pavement as shown by the detail. All costs associated with the construction of the transverse joint shall be included in the bid price for Square Yards of 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE).

CITY OF WICHITA		
TYPICAL PAVEMENT DETAIL		
SOUTHLAKES PARK		
CED PROJ. NO.: 20020900		
CERTIFIED ENGINEERING DESIGN, P.A.		
810 WEST DOUGLAS, SUITE C		
WICHITA, KANSAS 67203		
PH.(316)282-8800 FAX.(316)282-1000		
DESIGNED: HDF	SCALE: NTS	SHEET 3
DRAWN: HDF	DATE: 7/02	
CHECKED: HDF	CED FILE: 24Typ.dwg	TOTAL 16



- LEGEND**
- W = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
 - B.M. = BENCH MARK
 - E.B. = ELECTRIC BOX
 - F.H. = FIRE HYDRANT
 - WV = WATER VALVE
 - G.P. = GUARD POST
 - H.L.P. = HIGH LINE POLE
 - L.P. = LIGHT POLE
 - G.P. = GATE POST
 - P.P. = POWER POLE
 - S. = SIGN
 - T.P. = TELEPHONE POLE
 - TR. = ELECTRIC TRANSFORMER
 - S.S.M.H. = SANITARY SEWER MANHOLE
 - D.I. = 2' x 2' AREA INLET
 - EXISTING DRIVE
 - EXISTING CRUSHED ROCK BASE

BENCHMARK #1:
City of Wichita Std. Disc 30' W. & 44' N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)

SURVEY CONTROL MONUMENTS

CM #1	N-20000.000 E-20000.000	1/2" Rebar W/ Savoy Cop
CM #2	N-19970.731 E-20778.736	1/2" Rebar W/ Savoy Cop
CM #3	N-19284.293 E-20225.224	1/2" Rebar W/ Savoy Cop
CM #4	N-19768.532 E-21382.240	1/2" Rebar W/ Savoy Cop
CM #5	N-20106.150 E-21914.570	1/2" Rebar W/ Savoy Cop

PLAN LABELS DEFINITION TABLE

PRC = REVERSE CURVE/CURVE INTERSECT
PC = BEGINNING OF CURVE
PT = CURVE/TANGENT INTERSECT
PVI = POINT OF VERTICAL INTERSECTION

CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'48"	298.32
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UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

**STREET PLAN & PROFILE FOR
SOUTHLAKES PARK
WICHITA, SEDGWICK CO., KANSAS**

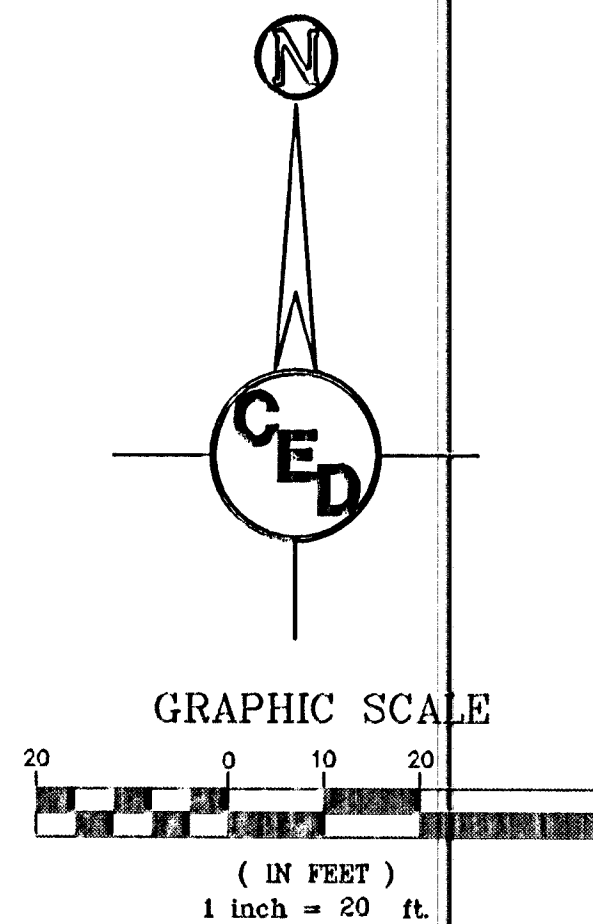
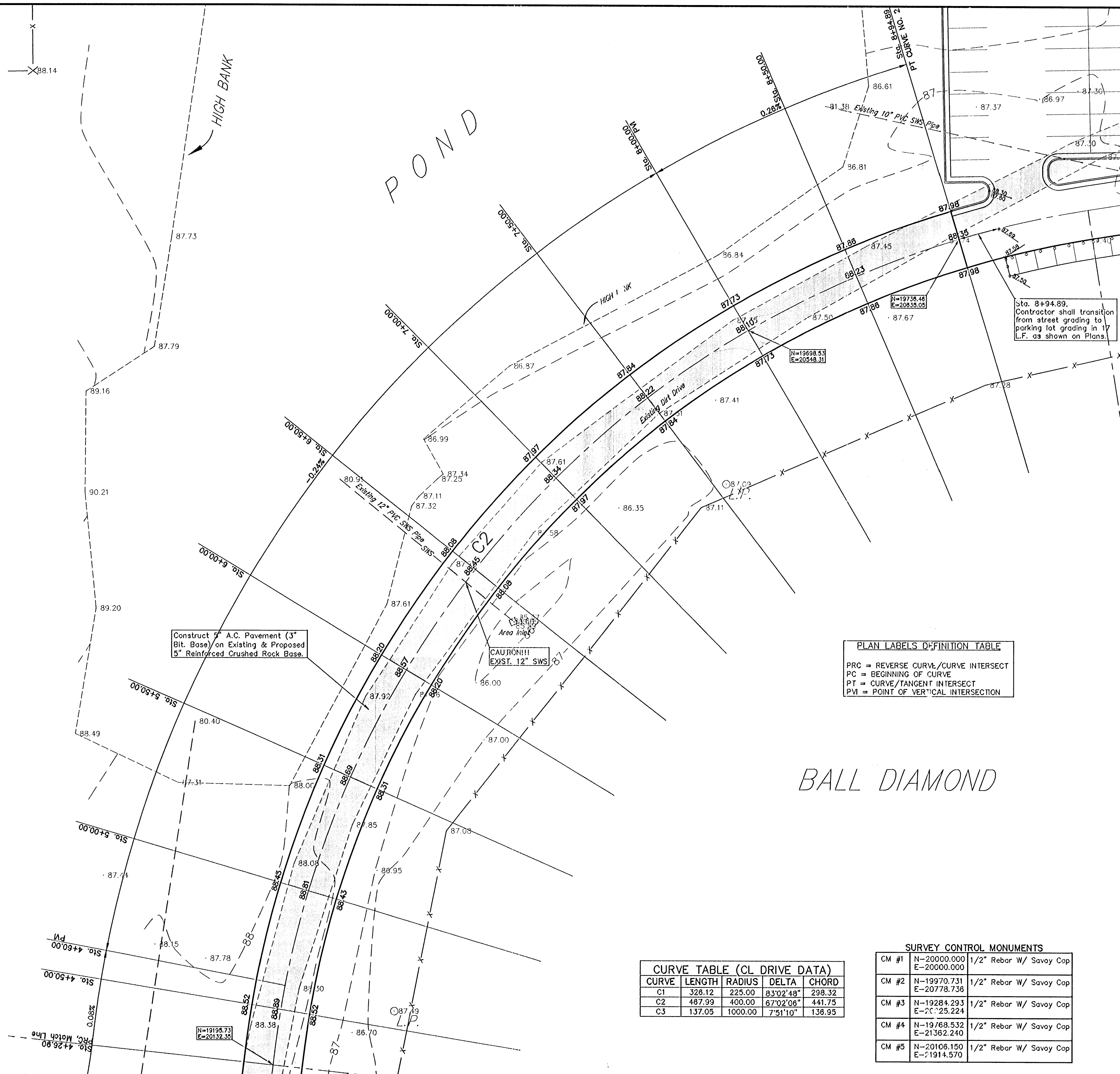
CED PROJ. NO.: 20020900

CERTIFIED ENGINEERING DESIGN, P.A.



810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF	SCALE: 1"=20'	SHEET
DRAWN: CKW	DATE: 7/02	4
CHECKED: HDF	CED FILE: SthLakes-Bas	TOTAL 16



- LEGEND**
- WM = WATER MAIN
 - SS = SANITARY SEWER
 - SWS = STORM WATER SEWER
 - UGE = UNDER GROUND ELECTRIC
- B.M. BENCH MARK
 - E.B. ELECTRIC BOX
 - F.H. FIRE HYDRANT
 - G.P. GUARD POST
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 - L.P. LIGHT POLE
 - G.P. GATE POST
 - P.P. POWER POLE
 - S. SIGN
 - T.P. TELEPHONE POLE
 - XTMR ELECTRIC TRANSFORMER
 - SS M.H. SANITARY SEWER MANHOLE
 - D.I. 2' x 2' Area Inlet
 - EXISTING DIRT DRIVE
 - EXISTING CRUSHED ROCK BASE

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of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #2:
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PLAN LABELS DEFINITION TABLE

PRC	=	REVERSE CURVE/CURVE INTERSECT
PC	=	BEGINNING OF CURVE
PT	=	CURVE/TANGENT INTERSECT
PVI	=	POINT OF VERTICAL INTERSECTION

CURVE TABLE (CL DRIVE DATA)

CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	328.12	225.00	83°02'48"	298.32
C2	487.99	400.00	67°02'06"	441.75
C3	137.05	1000.00	7°51'10"	138.95

SURVEY CONTROL MONUMENTS

CM #	N	E	Monument
CM #1	N-20000.000	E-20000.000	1/2" Rebar W/ Savoy Cop
CM #2	N-19970.731	E-20778.736	1/2" Rebar W/ Savoy Cop
CM #3	N-19284.293	E-20225.224	1/2" Rebar W/ Savoy Cop
CM #4	N-19768.532	E-21362.240	1/2" Rebar W/ Savoy Cop
CM #5	N-20106.150	E-19114.570	1/2" Rebar W/ Savoy Cop

STREET PLAN & PROFILE FOR

SOUTHLAKES PARK

WICHITA, SEDGWICK CO., KANSAS

CED PROJ. NO.: 20020900

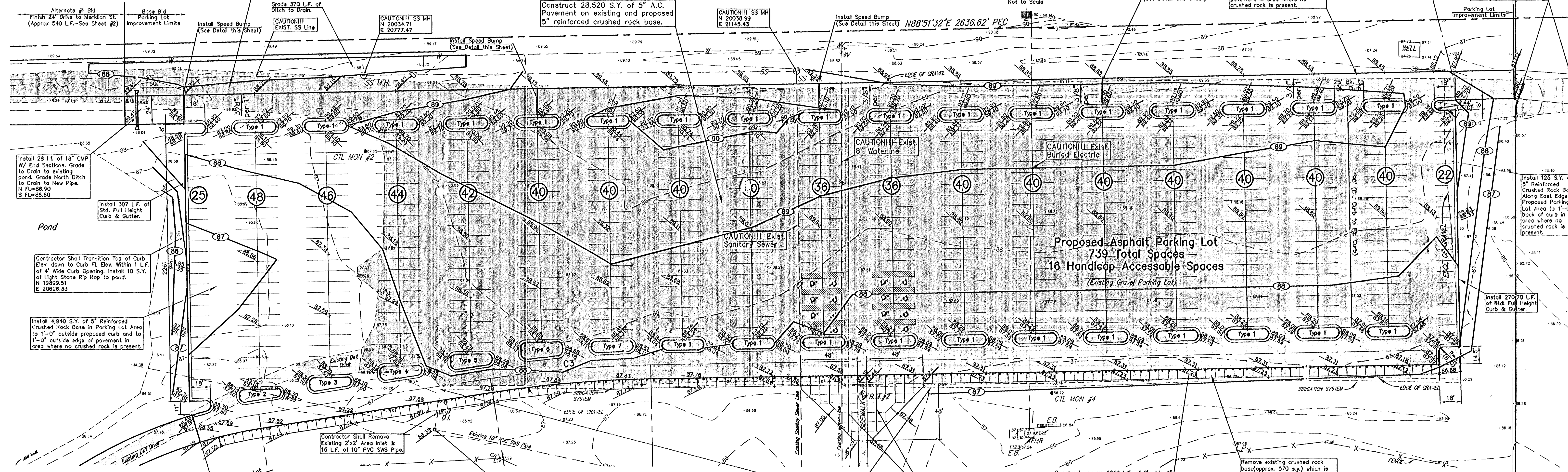
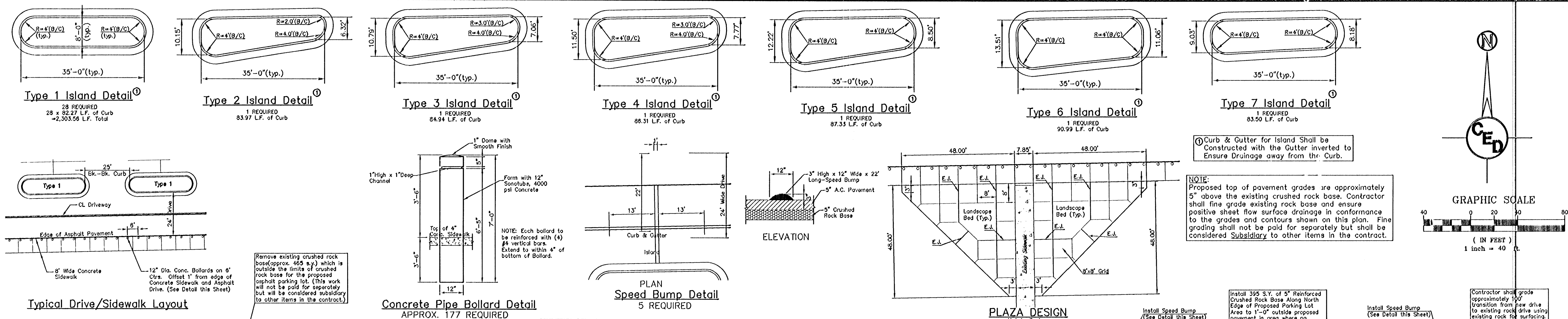
CERTIFIED ENGINEERING DESIGN, P.A.

810 WEST DOUGLAS, SUITE C

WICHITA, KANSAS 67203

PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF	SCALE: 1"=20'	SHEET
DRAWN: CKW	DATE: 7/02	5
CHECKED: HDF	CED FILE: SthLakes-Bose	TOTAL 16



SITE GRADING NOTES

The Contractor shall provide a minimum advance notice of 48 hours to utility companies prior to starting construction as follows:

KANSAS ONE CALL 1-800-344-7233 or 687-2470 (LOCAL WICHITA)

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

Cox Cable 282-4270 or 283-2081
Southwestern Bell Telephone 1-571-2811
Kansas Gas Service 832-3188
K&E-Electric 268-4555
Peoples Natural Gas 942-8811
City of Wichita (Water & Sewer) 268-4555

The contractor shall notify pipeline companies at least 24 hours in advance of any work being performed across and/or adjacent to pipelines.

- Pavement grades shown are to the top of pavement.
- Existing elevations were provided by others. Contractor shall verify existing grades and notify Engineer of any discrepancies. Elevations are based on City Datum.
- Contractor shall be responsible for establishing and protecting Benchmarks throughout construction.
- Contractor shall strip site of topsoil (5" min.) and stockpile this material to be used in grassed areas.

- Curb at East and West ends of Parking Lot and all Landscape Islands are City of Wichita Standard Combined Curb & Gutter.
- Compaction of fill material and subgrade stabilization shall comply with Geotechnical Engineering Report.
- All soil used for overexcavation and for backfilling of excavations for basement, tank removal etc. shall be tested for compaction as required by an independent Soils Engineer's recommendations.
- The Contractor shall examine the construction site before bidding and be satisfied as to the work shown for completion. After bids have been received, the Contractor shall not assert that there was a misunderstanding of the quantities of work or of the nature of work to be completed.
- All proposed slopes and grades shall be in accordance with ADA Sec. 4.1.3(a)(ii).

G SITE GRADING PLAN

- GRADING LEGEND**
- 87.23 - Existing Elevation
 - 86 - Existing Contour Elevation
 - 85.15 - Proposed Spot Elevation
 - 85 - Proposed Contour Elevation
 - Proposed Drainage Flow Direction
 - Proposed Ridge Line

CURVE TABLE (CL DRIVE DATA)				
CURVE	LENGTH	RADIUS	DELTA	CHORD
C1	326.12	225.00	83°02'48"	298.32
C2	467.99	400.00	67°02'08"	441.75
C3	137.05	1000.00	7°51'10"	136.95

BENCHMARK #1:
City of Wichita Std. Disc 30" W. & 44" N. of Intersection of Meridian & 51st St. S. Elev.=88.62 (City Datum)

BENCHMARK #2:
City of Wichita Std. Disc 30" W. & 44" N. of Edge of Walk 9' S. of North Elev.=87.52 (City Datum)

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

SOUTLAKES PARK
PARKING LOT IMPROVEMENTS
WICHITA, KANSAS 67203
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HOF
DRAWN: CKW
CHECKED: HOF

SCALE: 1"=40'
DATE: 7/02
CED FILE: StLakes-Base.dwg

SHEET
6
TOTAL 16

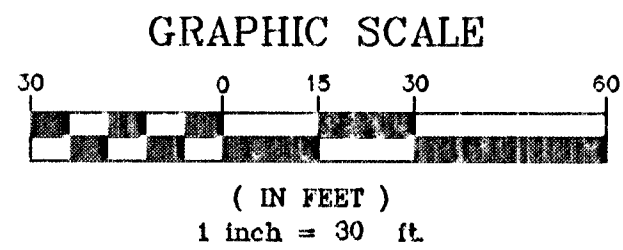
BC=Back of Curb
 BC-COR=Back of Curb & Corner
 BC-UN=End Back of Curb
 BC-RR=Back of curb & Radius Point
 BW=Back of Curb & Sidewalk
 CR=Center Point of Radius
 CTR=CR=Center of Drive
 EOP/RC=Edge of Pavement & Face of Curb
 EOP/SB=Edge of Pavement & Speed Bump
 EOP-PP=Edge of Pavement Radius Point
 EOP/SW=Edge of Pavement & Sidewalk
 FCP/EP=Face of Curb & Edge of Pavement
 T=Top of Pavement
 SW-COR=Corner of Sidewalk
 SW-RR=Sidewalk Radius Point
 SW=Sidewalk

NOTE:
 Points with an elevation of 0.00 have not been assigned an elevation on the grading plan. Utilize elevation on nearest point. If required, interpolate elevation between next nearest points as shown on the grading plan.

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

BENCHMARK #1:
City of Wichita Std. Disc 30' W. & 44' N.
of Intersection of Meridian & 51st St. S.
Elev.=88.62(City Datum)

BENCHMARK #1:
"□" Cut Center of Walk 9' S. of North
Edge of Walk Between Ball Diamonds.
Elev.=87.52(City Datum)

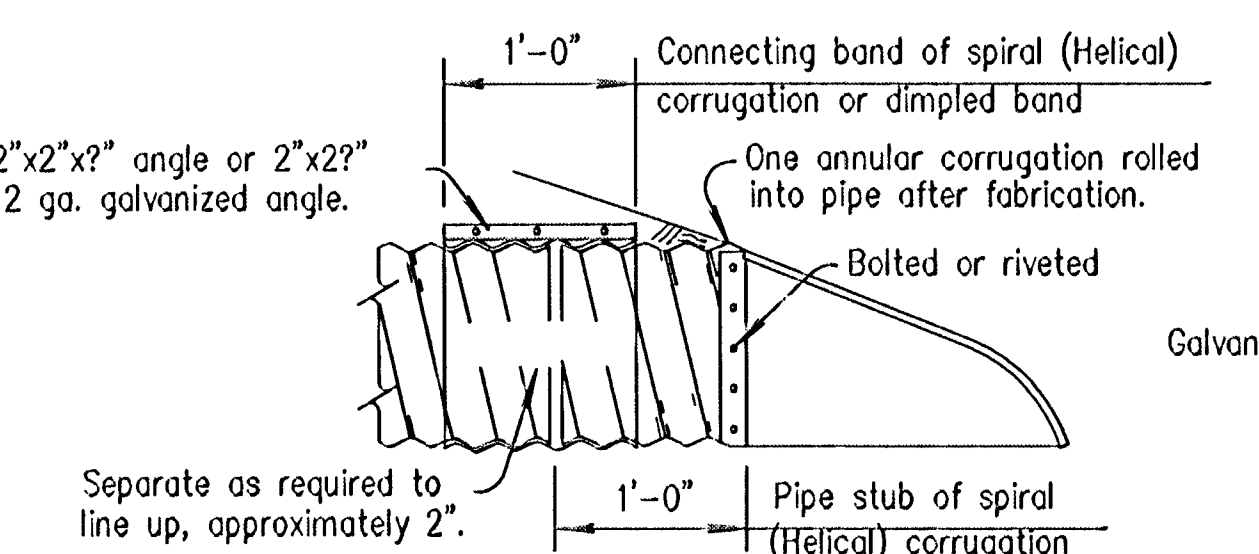
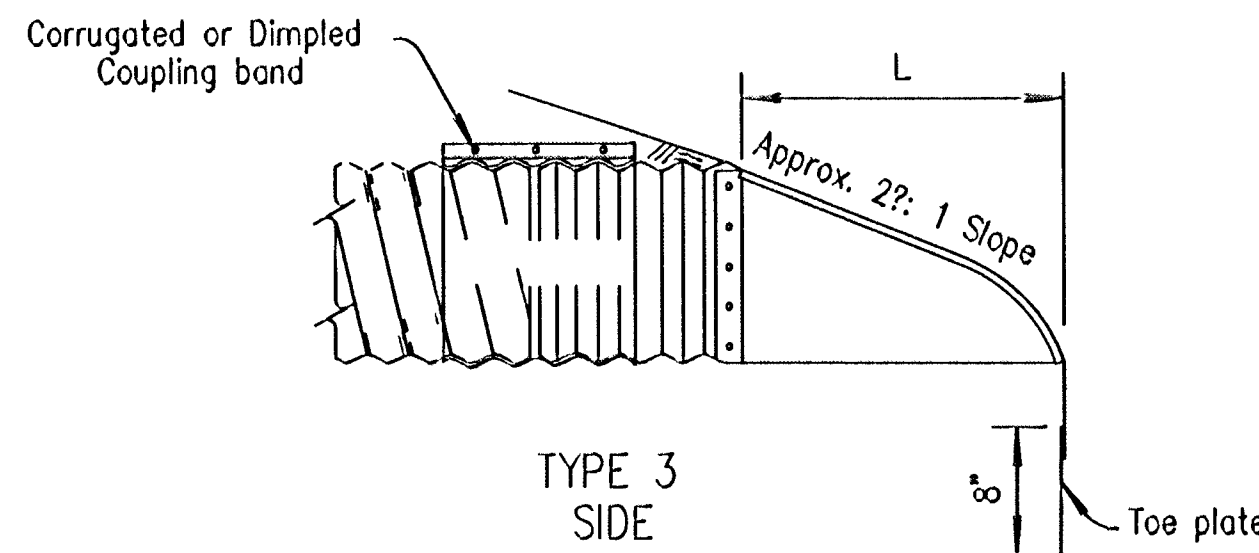
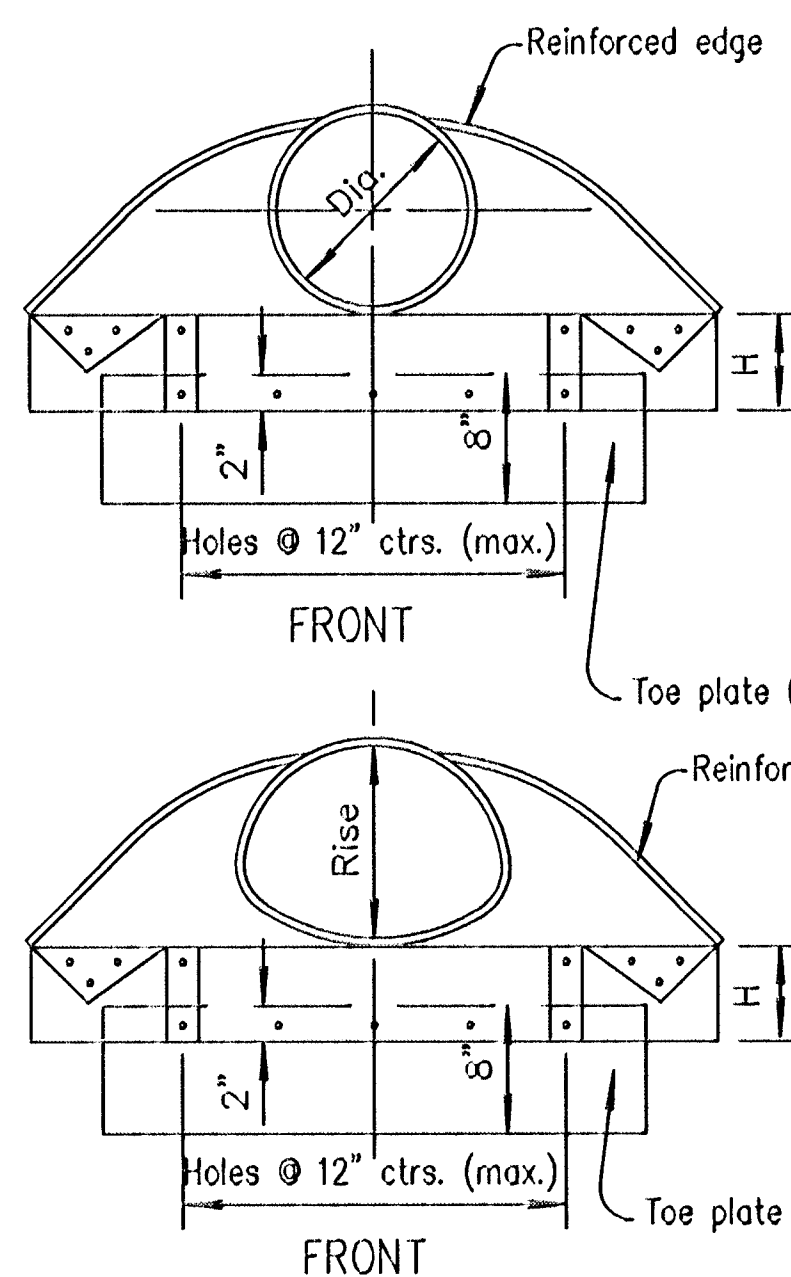
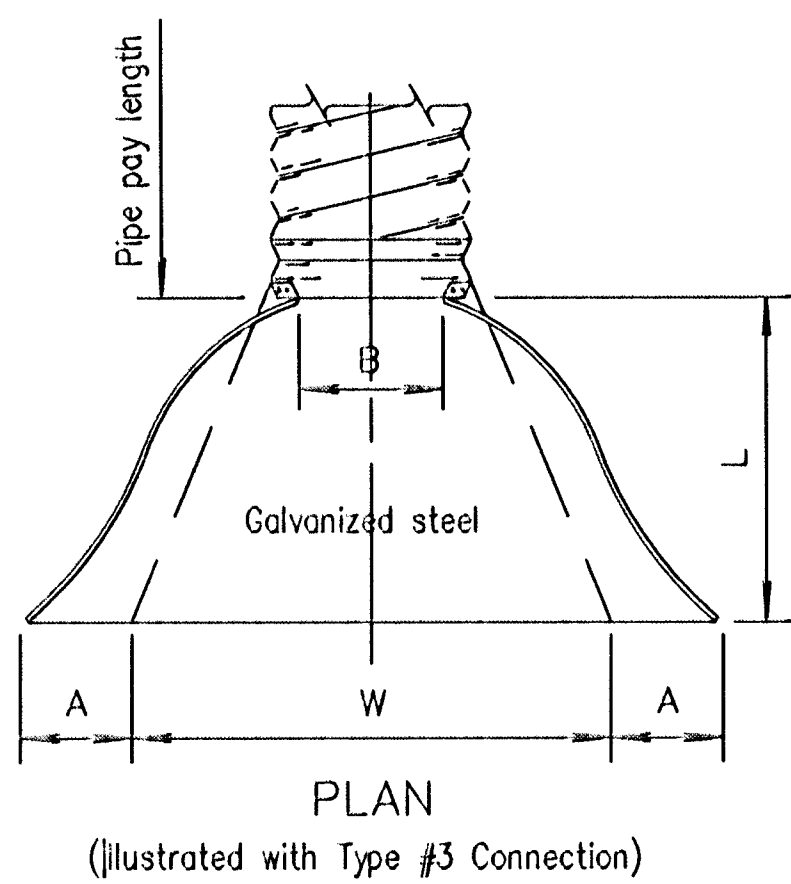


CM #1	N-20000.000 E-20000.000	1/2" Rebar W/ Savoy Cap
CM #2	N-19970.731 E-20778.736	1/2" Rebar W/ Savoy Cap
CM #3	N-19284.293 E-20225.224	1/2" Rebar W/ Savoy Cap
CM #4	N-19768.532 E-21362.240	1/2" Rebar W/ Savoy Cap
CM #5	N-20106.150 E-21914.570	1/2" Rebar W/ Savoy Cap

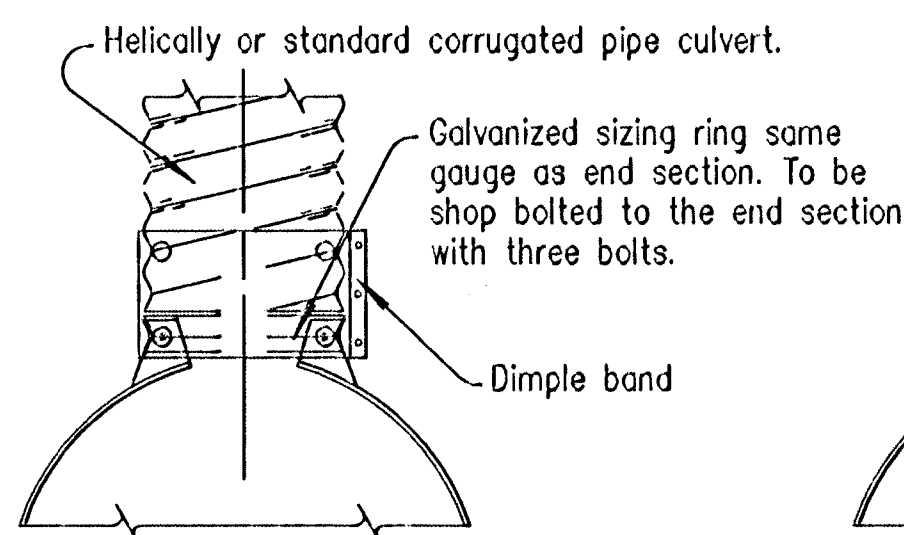
SOUTHLAKES PARK		
PARKING LOT CONTROL PLAN		
WICHITA, SEDGWICK CO., KANSAS		
CED PROJ. NO.: 20020900		
CERTIFIED ENGINEERING DESIGN, P.A.		
	810 WEST DOUGLAS, SUITE C	
	WICHITA, KANSAS 67203	
	PH.(316)262-8808	FAX.(316)262-1669
DESIGNED: HDF	SCALE: 1"=30'	SHEET 7
DRAWN: CKW	DATE: 7/02	
CHECKED: HDF	CED FILE: SthLakes-Base.dwg	TOTAL 16

Number	Northing	Easting	Elevation	Description
6000	20017.03	20573.98	89.45	BCP
6001	19993.04	20574.45	89.45	BCP
6002	19994.03	20624.44	89.70	BCP-PC
6003	19993.03	20624.45	89.20	BC-END
6004	19993.81	20638.45	0.00	BC-RP
6005	19999.89	20644.53	89.30	BC-RP
6006	19995.81	20650.00	89.00	BCP
6007	19999.81	20658.53	0.00	CP
6008	19995.53	20624.61	88.80	BC-COR
6009	19972.56	20628.86	88.95	BC-CP
6010	19979.58	20623.11	87.85	BC-COR-11
6011	19979.47	20643.61	0.00	BC-RP
6012	19976.44	20647.18	0.00	BC-RP
6013	19976.22	20641.18	88.30	BC-RP
6014	19976.01	20647.19	0.00	BC-RP
6015	19972.07	20644.22	0.00	BC-RP
6016	19976.37	20643.68	0.00	CP
6017	19975.31	20643.60	0.00	CP
6018	19978.42	20631.43	88.48	BC-END
6019	19974.34	20631.58	87.98	BCP/PC
6020	19976.46	20635.05	88.35	CTR-OR
6021	19974.36	20638.49	87.98	BCP/SW
6022	19972.33	20654.11	87.58	BCP/SW
6023	19972.58	20656.10	87.50	SW-COR
6024	19976.91	20690.16	87.54	BCP-RP
6025	19978.30	20691.41	87.46	SW-RP
6026	19979.38	20676.77	0.00	BC-RP
6027	19973.74	20703.59	0.00	BC-RP
6028	19977.77	20705.91	0.00	BC-RP
6029	19977.31	20705.36	88.30	BC-RP
6030	19978.13	20706.96	0.00	BC-RP
6031	19970.09	20704.92	0.00	BC-RP
6032	19978.09	20704.96	0.00	CP
6033	19977.69	20702.97	0.00	CP
6034	19979.78	20689.42	88.15	BCP
6035	19979.51	20675.93	0.00	BC-RP
6036	19976.43	20672.01	0.00	BC-RP
6037	19974.33	20672.03	88.10	BCP
6038	19976.23	20672.05	0.00	BC-RP
6039	19976.51	20676.00	0.00	CP
6040	19975.31	20676.05	0.00	BC-RP
6041	19978.39	20736.39	0.00	BC-RP
6042	19973.19	20763.34	0.00	BC-RP
6043	19977.22	20761.71	0.00	BC-RP
6044	19977.27	20765.76	88.10	BCP
6045	19977.32	20766.71	0.00	BC-RP
6046	19978.26	20763.65	0.00	CP
6047	19977.14	20762.11	0.00	CP
6048	19977.26	20763.71	0.00	CP
6049	19979.38	20749.64	87.80	BCP
6050	19979.70	20739.62	0.00	BC-RP
6051	19979.62	20731.71	0.00	BC-RP
6052	19974.21	20731.73	88.30	BCP
6053	19972.80	20731.76	0.00	BC-RP
6054	19979.70	20735.70	0.00	CP
6055	19972.88	20735.76	0.00	CP
6056	19979.41	20736.32	0.00	BC-RP
6057	19972.67	20921.24	0.00	BC-RP
6058	19978.70	20922.61	0.00	BC-RP
6059	19978.52	20926.60	0.00	BC-RP
6060	19978.11	20926.60	88.46	BCP
6061	19979.46	20923.54	0.00	BC-RP
6062	19977.46	20923.60	0.00	CP
6063	19976.62	20922.61	0.00	CP
6064	19979.18	20909.54	88.30	BCP
6065	19979.30	20919.54	0.00	BC-RP
6066	19978.82	20919.62	0.00	BC-RP
6067	19978.28	20919.69	0.00	BC-RP
6068	19978.04	20919.66	8.12	BCP
6069	19978.90	20919.62	0.00	BC-RP
6070	19978.36	20919.69	0.00	CP
6071	19978.88	20919.64	0.00	BC-RP
6072	19979.14	20919.66	0.00	BC-RP
6073	19978.17	20919.64	0.00	BC-RP
6074	19978.71	20919.64	0.00	BC-RP
6075	19976.44	20919.64	88.56	BCP
6076	19980.03	20919.64	0.00	BC-RP
6077	19978.63	20919.64	0.00	CP
6078	19979.09	20919.64	0.00	CP
6079	19980.36	20919.64	88.76	BCP
6080	19980.09	20919.64	0.00	BC-RP
6081	19979.01	20919.64	0.00	BC-RP
6082	19979.15	20919.64	0.00	BC-RP
6083	19979.38	20919.64	88.56	BCP
6084	19979.09	20919.64	0.00	BC-RP
6085	19979.31	20919.64	0.00	BC-RP
6086	19979.53	20919.64	87.78	BCP/SW
6087	19979.05	20919.64	87.70	BCP
6088	19979.78	20919.64	87.54	BCP/SW
6089	19979.77	20919.64	87.54	BCP/SW
6090	19980.34	20919.64	0.00	BC-RP
6091	19980.80	20919.64	0.00	BC-RP
6092	19980.82	20919.64	88.68	BCP
6093	19980.31	20919.64	88.68	BCP
6094	19980.36	20919.64	0.00	CP
6095	19980.82	20919.64	0.00	CP
6096	19980.55	20919.64	88.78	BCP
6097	19980.28	20919.64	0.00	BC-RP
6098	19980.21	20919.64	0.00	BC-RP
6099	19980.67	20919.64	0.00	BC-RP
6100	19980.44	20919.64	88.68	BCP
6101	19980.29	20919.64	0.00	CP
6102	19980.75	20919.64	0.00	CP
6103	19980.45	20919.64	0.00	BC-RP
6104	19980.34	20919.64	0.00	BC-RP
6105	19980.72	20919.64	0.00	BC-RP
6106	19980.10	20919.64	0.00	BC-RP
6107	19980.02	20919.64	88.61	BCP
6108	19980.01	20919.64	0.00	CP
6109	19980.02	20919.64	0.00	CP
6110	19980.74	20919.64	0.00	BC-RP
6111	19981.75	20919.64	88.81	BCP
6112	19981.48	20919.64	0.00	BC-RP
6113	19980.70	20919.64	0.00	BC-RP
6114	19980.36	20919.64	0.00	BC-RP
6115	19980.88	20919.64	88.61	BCP/SW
6116	19979.90	20919.64	87.81	BCP/SW
6117	19979.30	20919.64	87.73	SW-RP
6118	19978.66	20919.64	87.54	CTR-OR
6119	19979.50	20919.64	87.54	CTR-OR
6120	19979.30	20919.64	0.00	CTR-OR
6121	19980.68	20919.64	0.00	CTR-OR
6122	19980.21	20919.64	0.00	BC-RP
6123	19980.29	20919.64	88.54	BCP
6124	19981.21	20919.64	0.00	BC-RP
6125	19980.21	20919.64	0.00	CP
6126	19981.34	20919.64	88.74	BCP
6127	19981.67	20919.64	0.00	BC-RP
6128	19980.60	20919.64	88.54	BCP-RP
6129	19980.68	20919.64	0.00	CP
6130	19980.68	20919.64	0.00	CP
6131	19980.61	20919.64	0.00	BC-RP
6132	19980.49	20919.64	88.50	BCP
6133	19981.41	20919.64	0.00	BC-RP
6134	19980.41	20919.64	0.00	CP
6135	19981.44	20919.64	88.70	BCP
6136	19981.87	20919.64	0.00	BC-RP
6137	19980.79	20919.64	88.50	BCP
6138	19980.87	20919.64	0.00	CP
6139	19974.44	20919.64	87.56	SW-COR
6140	19974.44	20919.64	87.56	SW-COR
6141	19979.38	20919.64	87.50	SW-COR
6142	19974.44	20919.64	0.00	SW-COR
6143	19974.44	20919.64	87.57	SW-COR
6144	19976.22	20919.64	0.00	SW-COR
6145	19976.24	20919.64	0.00	SW-COR
6146	19975.24	20919.64	0.00	SW-COR
6147	19975.09	20919.64	0.00	SW-COR
6148	19975.22	20919.64	0.00	SW-COR
6149	19975.40	20919.64	87.36	SW-COR
6150	19975.55	20919.64	87.44	SW-COR
6151	19977.71	20919.64	0.00	SW-COR
6152	19978.03	20919.64	0.00	SW-COR
6153	19976.03	20919.64	0.00	SW-COR
6154	19975.87	20919.64	0.00	SW-COR

Number	Northing	Easting	Elevation	Description
6155	19751.71	21213.51	0.00	SW-COR
6156	19727.56	21205.79	87.65	SW-COR
6157	19727.62	21209.79	0.00	SW-COR
6158	19751.56	21230.99	87.08	SW-COR
6159	19777.51	21253.18	0.00	SW-COR
6160	19776.51	21253.12	87.23	SW-COR
6161	19707.07	21255.21	0.00	BC-RP
6162	19707.60	21282.27	0.00	BC-RP
6163	19811.68	21186.19	88.28	BC-RP
6164	19815.60	21182.11	0.00	BC-RP
6165	19811.60	21182.13	0.00	CP
6166	19815.33	21168.61	88.48	BC-RP
6167	19815.06	21155.11	0.00	BC-RP
6168	19810.39	21151.19	88.28	BC-RP
6169	19811.07	21155.19	0.00	BC-RP
6170	19808.26	21215.26	0.00	BC-RP
6171	19808.80	21242.26	0.00	BC-RP
6172	19816.60	21242.10	0.00	BC-RP
6173	19816.62	21246.17	88.09	BC-RP
6174	19818.80	21242.18	0.00	CP
6175	19816.63	21248.60	88.29	BCP
6176	19816.75	21251.10	0.00	BC-RP
6177	19817.27	21211.18	88.09	BC-RP
6178	19812.26	21215.18	0.00	CP
6179	19809.46	21275.25	0.00	BC-RP
6180	19809.39	21302.24	0.00	BC-RP
6181	19811.39	21302.09	0.00	BC-RP
6182	19814.07	21306.16	88.09	BC-RP
6183	19813.39	21302.06	0.00	CP
6184	19811.72	21288.59	88.29	BCP
6185	19811.45	21275.09	0.00	BC-RP
6186	19813.38	21271.17	88.09	BCP
6187	19813.45	21275.17	0.00	CP
6188	19810.65	21335.24	0.00	BC-RP
6189	19811.19	21362.23	0.00	BC-RP
6190	19812.27	21366.15	88.09	BCP
6191	19813.19	21362.17	88.09	BCP
6192	19813.19	21362.15	0.00	CP
6193	19813.32	21348.57	88.29	BCP
6194	19818.65	21335.08	0.00	BC-RP
6195	19814.57	21331.14	88.09	BCP
6196	19814.65	21335.16	0.00	CP
6197	19811.85	21395.22	0.00	BC-RP
6198	19812.38	21422.22	0.00	BC-RP
6199	19816.46	21426.14	88.09	BCP
6200	19819.38	21422.06	0.00	BC-RP
6201	19816.38	21422.14	0.00	CP
6202	19820.11	21422.18	88.29	BCP
6203	19811.84	21395.07	0.00	BC-RP
6204	19815.77	21391.15	88.09	BCP
6205	19815.84	21391.15	0.00	BC-RP
6206	19813.34	21391.15	0.00	BC-RP
6207	19813.38	21482.21	0.00	BC-RP
6208	19816.66	21486.13	88.09	BCP
6209	19812.58	21482.18	0.00	BC-RP
6210	19811.58	21482.13	0.00	CP
6211	19821.31	21468.55	88.29	BCP
6212	19811.04	21455.05	0.00	BC-RP
6213	19811.04	21455.13	0.00	CP
6214	19811.04	21455.13	0.00	CP
6215	19811.24	21455.20	0.00	BC-RP
6216	19811.77	21452.20	0.00	BC-RP
6217	19811.85	21446.12	88.09	BCP
6218	19822.77	21542.04	0.00	BC-RP
6219	19811.00	21542.04	0.00	BC-RP
6220	19822.50	21528.54	88.29	BCP
6221	19822.33	21515.04	0.00	BC-RP
6222	19818.16	21511.12	88.09	BCP
6223	19819.23	21511.12	0.00	CP
6224	19815.43	21515.19	0.00	BC-RP
6225	19815.57	21602.18	0.00	BC-RP
6226	19821.97	21602.02	0.00	BC-RP
6227	19815.43	21602.02	0.00	CP
6228	19815.97	21602.02	0.00	CP
6229	19821.97	21602.02	0.00	CP
6230	19823.17	21588.53	88.29	BCP
6231	19823.17	21588.53	0.00	BC-RP
6232	19819.43	21575.11	0.00	CP
6233	19816.63	21635.18	0.00	BC-RP
6234	19811.16	21682.17	0.00	BC-RP
6235	19816.16	21682.17	0.00	CP
6236	19821.24	21666.09	87.36	BCP
6237	19821.16	21662.09	0.00	CP
6238	19824.89	21648.52	87.16	BCP
6239	19824.62	21648.52	0.00	BC-RP
6240	19820.55	21631.10	87.36	BCP
6241	19820.62	21635.10	0.00	CP
6242	19795.29	21691.51	86.88	SW-COR
6243	19791.23	21691.51	0.00	SW-COR
6244	19773.24	21691.51	87.04	PC/SW
6245	19803.74	21691.44	0.00	BC-RP
6246	19807.82	21695.26	0.00	BC-RP
6247	19808.59	21695.26	0.00	BC-RP
6248	19803.82	21695.44	0.00	CP
6249	19808.10	21709.36	87.36	BC-COR
6250	19816.58	21707.20	88.83	BCP
6251	19807.06	21716.67	88.83	BC-COR
6252	20006.78	21691.40	0.00	BC-RP
6253	20014.78	21691.24	0.00	BC-RP
6254	20010.70	21712.39	87.36	BCP
6255	20010.70	21712.39	0.00	BC-RP
6256	20015.06	21705.24	89.20	BC-ENO
6257	20015.56	21705.23	88.70	EOP/PC
6258	20015.56	21705.23	88.70	EOP/SB
6259	20016.55	21755.22	87.60	EOP
6260	20014.55	21734.24	87.60	EOP
6261	20013.19	21686.25	88.12	EOP
6262	20013.31	21686.25	88.12	EOP
6263	20013.86	21654.75	89.70	BCP
6264	20014.12	21658.25	0.00	BC-RP
6265	20010.20	21682.33	89.50	BCP
6266	20008.13	21658.25	0.00	CP
6267	20010.12	21658.33	0.00	CP
6268	20005.86	21644.91	89.70	BCP
6269	20005.59	21631.41	0.00	BC-RP
6270	20009.51	21631.25	88.65	EOP
6271	20013.53	21631.25	0.00	BC-RP
6272	20009.59	21631.33	0.00	BC-RP
6273	20003.16	21548.27	88.65	EOP
6274	20003.46	21548.27	88.65	EOP
6275	20012.93	21538.26	0.00	BC-RP
6276	20004.93	21538.42	0.00	BC-RP
6277	20009.01	21538.42	88.65	EOP
6278	20004.65	21538.34	0.00	BC-RP
6279	20004.46	21538.92	89.64	BCP
6280	20004.39	21571.42	0.00	BC-RP
6281	20004.39	21571.42	0.00	BC-RP
6282	20008.87	21567.35	89.70	BCP
6283	20008.87	21571.35	0.00	CP
6284	20035.36	21584.29	88.75	EOP
6285	20031.47	21584.29	88.75	EOP
6286	20011.73	21538.27	0.00	BC-RP
6287	20003.74	21538.43	0.00	BC-RP
6288	20003.81	21538.43	0.00	BC-RP
6289	20007.74	21538.35	0.00	BC-RP
6290	20003.47	21524.93	89.72	BCP
6291	20003.20	21511.44	0.00	BC-RP
6292	20003.20	21511.44	0.00	BC-RP
6293	20007.12	21507.36	89.80	BCP
6294	20007.20	21511.36	0.00	CP
6295	20034.77	21464.30	88.85	EOP
6296	20034.21	21464.30	88.85	EOP
6297	20002.27	21464.35	89.84	BCP
6298	20010.54	21478.28	0.00	BC-RP
6299	20002.54	21478.44	0.00	BC-RP
6300	20006.63	21478.44	0.00	CP
6301	20005.54	21478.36	0.00	BC-RP
6302	20002.00	21451.45	0.00	BC-RP
6303	20010.00	21451.29	0.00	BC-RP
6304	20003.93	21451.29	0.00	CP
6305	20006.00	21451.37	0.00	CP
6306	20033.57	21404.31	88.85	EOP/SB
6307	20009.08	21404.30	90.10	BCP
6308	20009.08	21404.30	90.10	BCP
6309	20033.34	21418.30	0.00	BC-RP

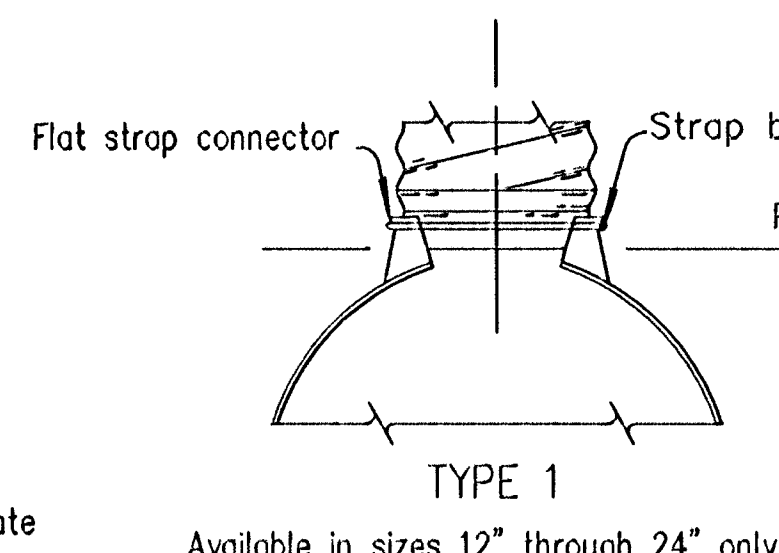


SPIRAL (HELICAL) CORRUGATION
For all sizes of round and arch culvert pipes having Spiral (Helical) corrugations, the end sections and connecting bands shall be as shown above.

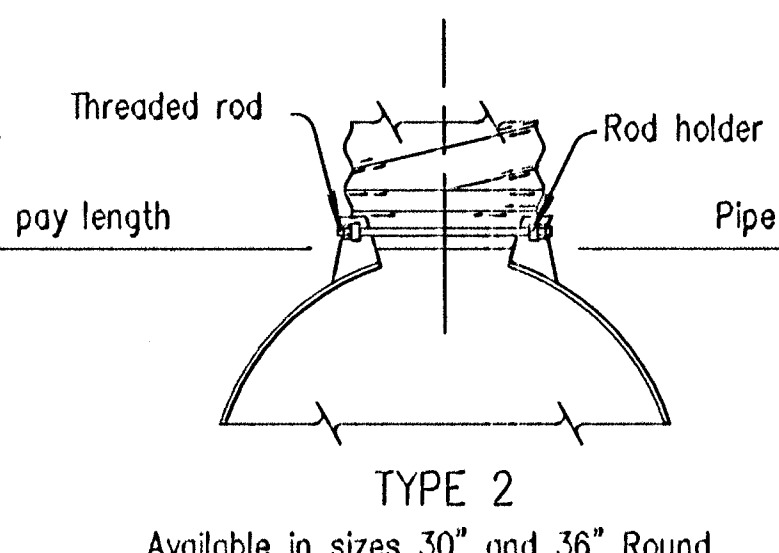


ALTERNATE TYPE D CONNECTION with Sizing Ring

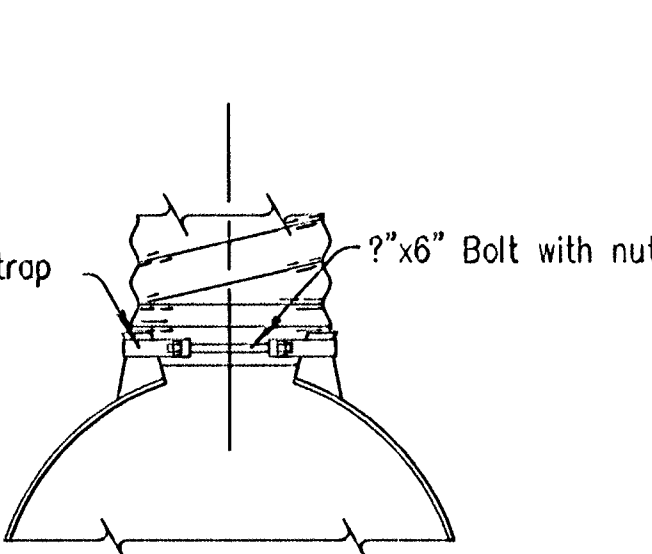
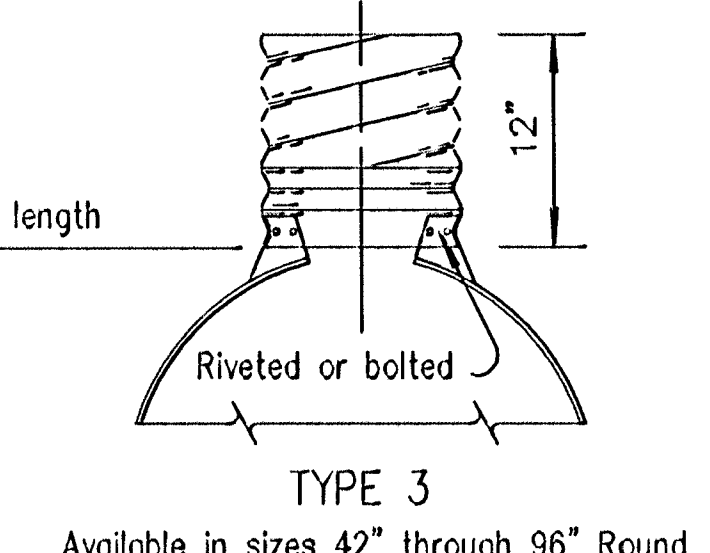
Available in sizes 12" through 36" and 17"x13" through 57"x38" Pipe-Arches.



Note: Type #3 connection may be furnished instead of Types #1 & #2 for smaller sizes of pipe and pipe arches.

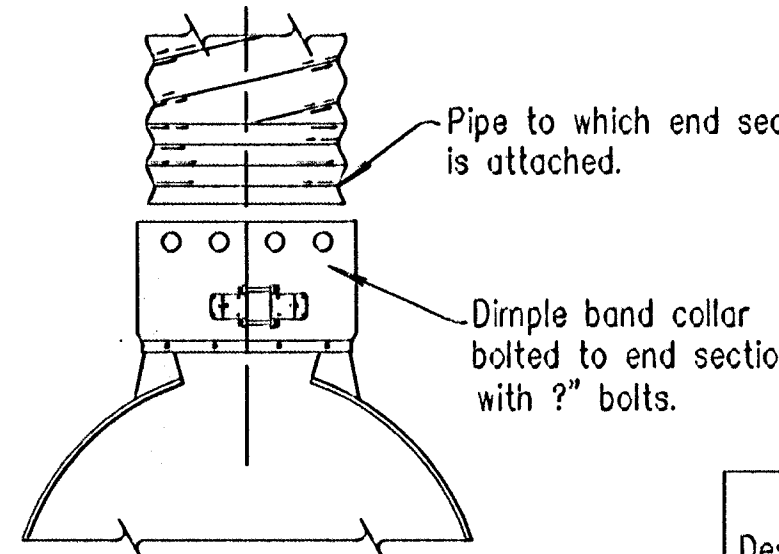


Note: Type #3 connection may be furnished instead of Types #1 & #2 for smaller sizes of pipe and pipe arches.

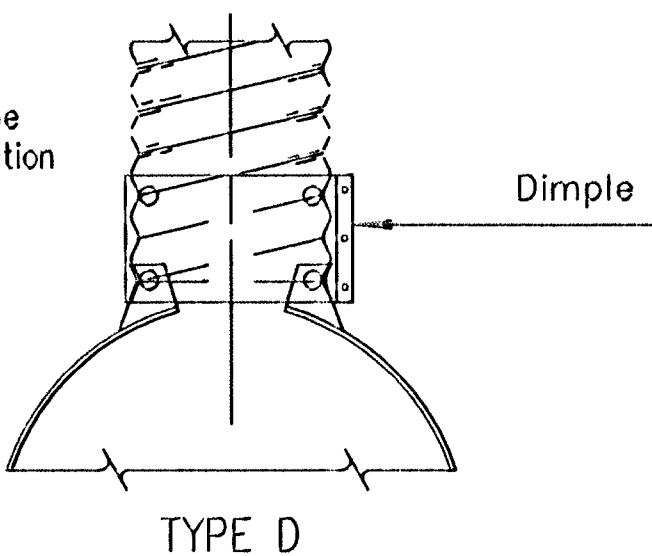


ALTERNATE TYPE 1
For 12" through 24" only.

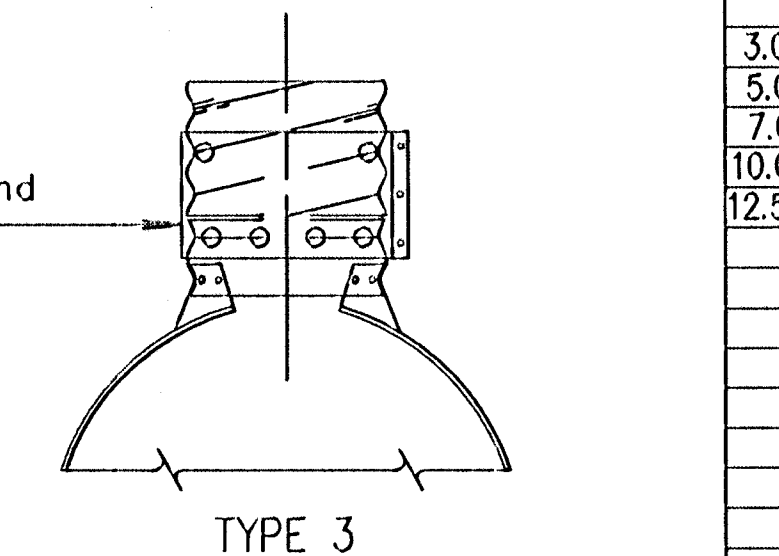
Available for all Round and equivalent Pipe-Arch sizes, (Type 1 and Type 2 connections are recommended for the smaller sizes with annular ends).



TYPE 5



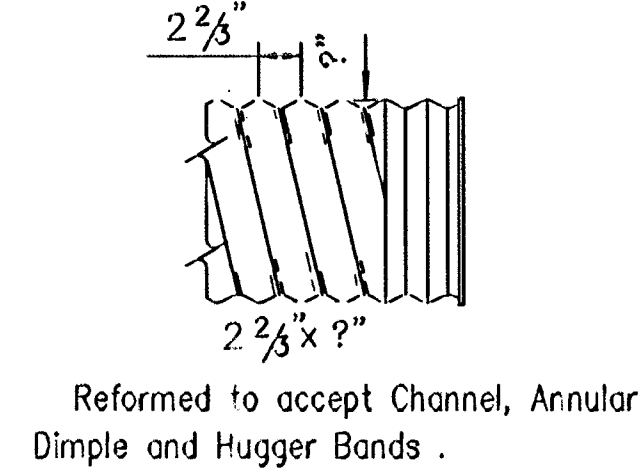
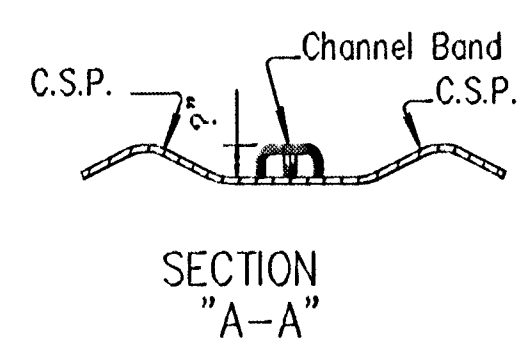
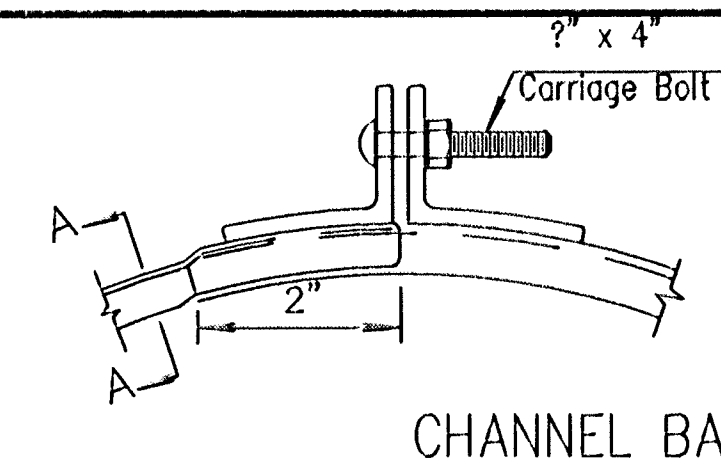
Available in sizes 12" through 36" and 17"x13" through 57"x38" Pipe-Arches.



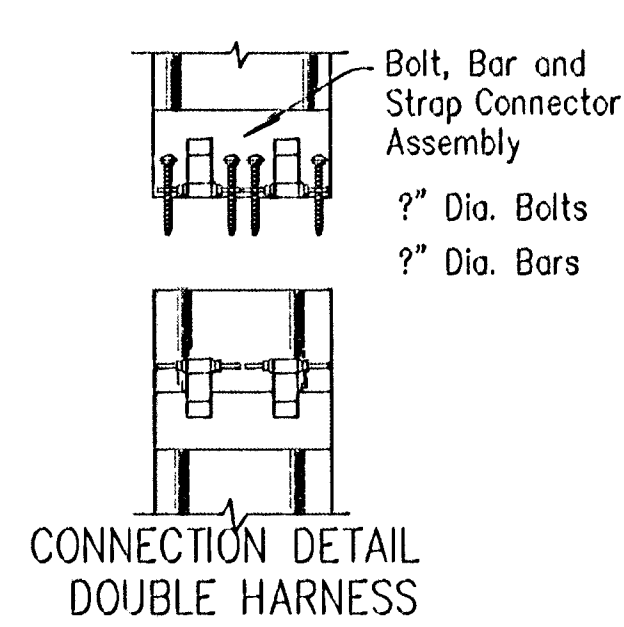
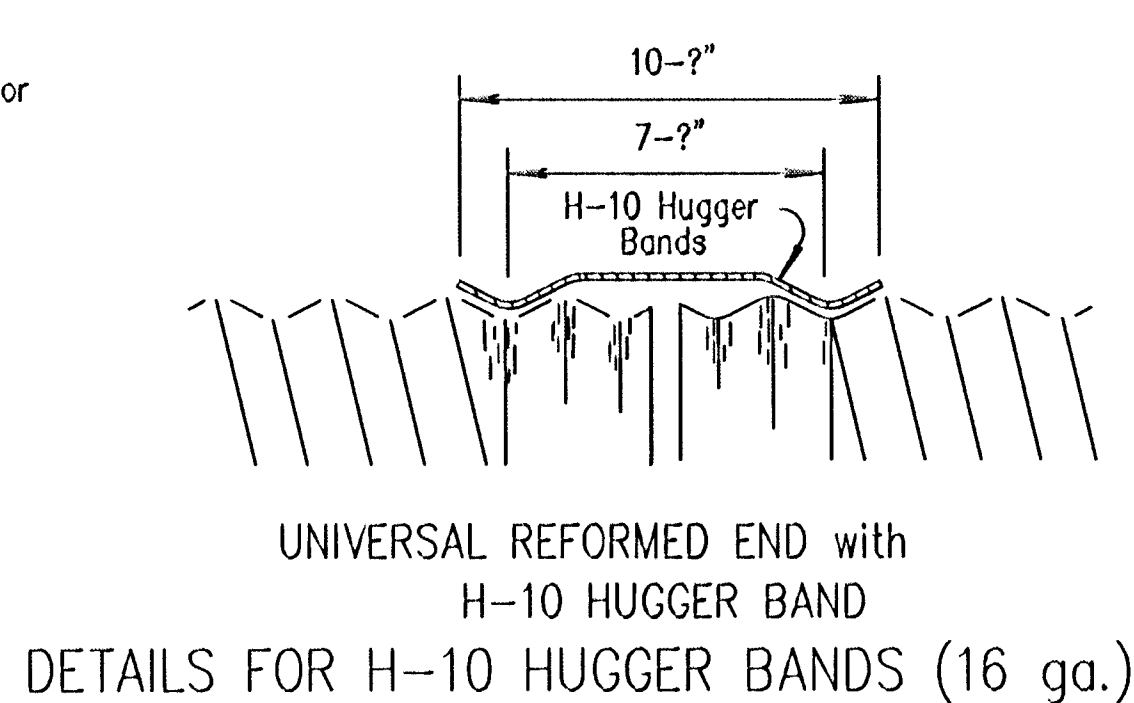
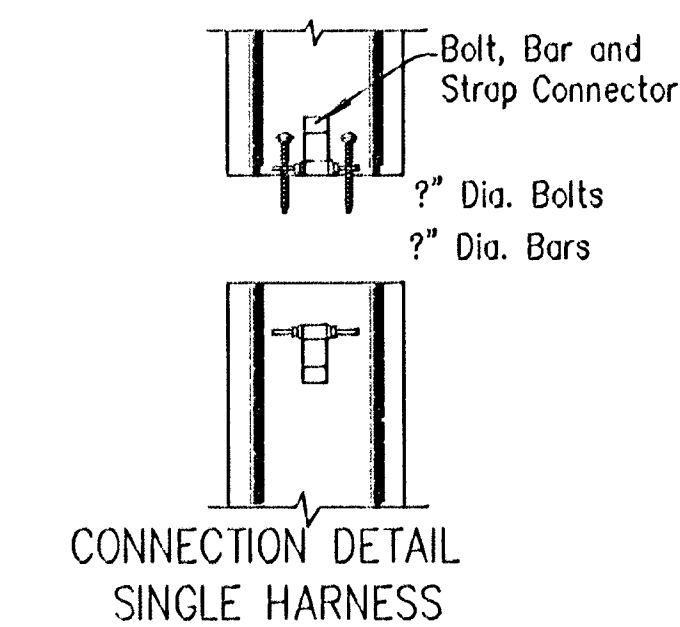
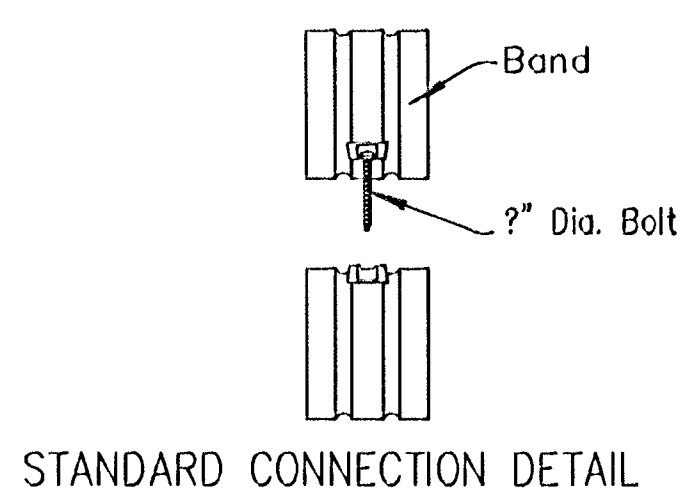
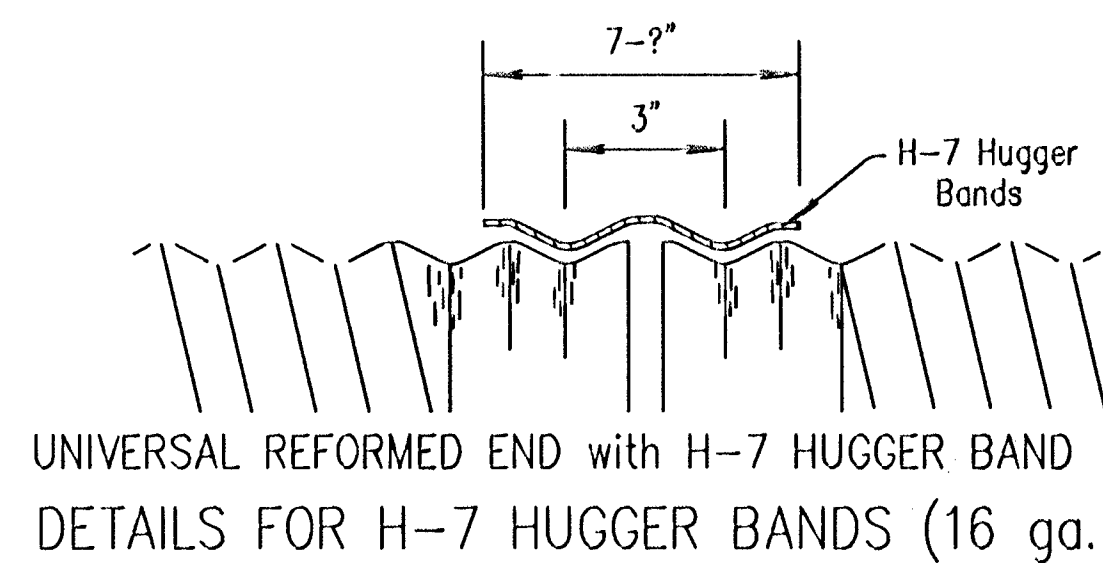
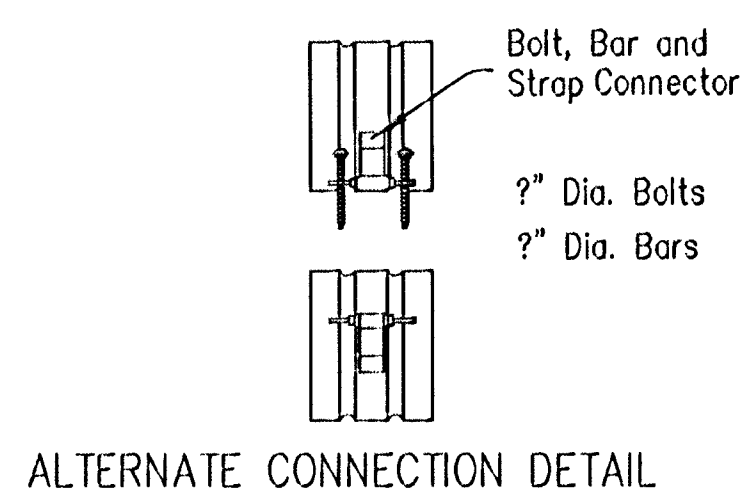
Available in sizes 42" and 96" Round and 60"x46" through 81"x59" Pipe-Arches.

Bid Designation Sq. Ft.	Nom. W.W. Area Sq. Ft.	Pipe Arch		Min. Gauge End Sect.	Dimensions in Inches								No. Apron Panels	Slope
		Span (in.)	Rise (in.)		A 1" Tol.	B Max.	H 1" Tol.	L 1" Tol.	W 2" Tol.	L 2" Tol.	W 2" Tol.	L 2" Tol.		
1.0	1.1	17	13	16	7	9	6	19	30	1	22: 1	12: 1	1	22: 1
1.5	1.6	21	15	16	7	10	6	23	36	1	22: 1	15: 1	1	22: 1
2.0	2.2	24	18	16	8	12	6	28	42	1	22: 1	18: 1	1	22: 1
2.5	2.8	28	20	16	9	14	6	32	48	1	22: 1	21: 1	1	22: 1
Sizes below with alternate dimensions														
3.0 or 4.0	4.4	35	24	14	10	16	6 & 8	39	60	1	22: 1	24: 1	1	22: 1
5.0 or 6.0	6.4	42	29	14	12	18	8 & 9	46	75	2	22: 1	30: 1	2	22: 1
7.0 or 8.5	8.7	49	33	12	13	21	9 & 12	53	85	2	22: 1	36: 1	2	22: 1
10.0 or 11.0	11.4	57	38	12	18	26	12	63	90	2	22: 1	42: 1	2	22: 1
12.5 or 14.0	15.6	60	46	12	18	30 & 34	12	70	102	2	2: 1	48: 1	2	22: 1
16.5	19.3	66	51	12 & 10	18	33	12	77	114 & 116	3	12: 1	54: 1	3	2: 1
21.0	23.2	73	55	12 & 10	18	36	12	77	126	3	12: 1	60: 1	3	2: 1
25.0	27.4	81	59	12 & 10	18	39	12	77	138	3	12: 1	66: 1	3	2: 1
32.0	32.1	87	63	12 & 10	22	38	12	77	148	3	12: 1	72: 1	3	2: 1
36.0	37.0	95	67	12 & 10	22	34	12	77	162	3	12: 1	78: 1	3	12: 1
42.0	42.4	103	71	12 & 10	22	38	12	77	174	3	12: 1	84: 1	3	12: 1
47.0	48.0	112	75	12 & 10	24	40	12	77	174	3	12: 1	90: 1	3	12: 1

Pipe Dia. (in.)	Min. Gauge Ends	Dimensions in Inches								No. Apron Panels	Slope
		A 1" Tol.	B Max.	H 1" Tol.	L 1" Tol.	W 2" Tol.	L 2" Tol.	W 2" Tol.	L 2" Tol.		
12"	16	6	6	6	21	24	1	22: 1	12: 1	1	22: 1
15"	16	7	8	6	26	30	1	22: 1	15: 1	1	22: 1
18"	16	8	10	6	31	36	1	22: 1	18: 1	1	22: 1
21"	16	9	12	6	36	42	1	22: 1	21: 1	1	22: 1
24"	16	10	13	6	41	48	1	22: 1	24: 1	1	22: 1
30"	14	12	16	6	51	60	1	22: 1	30: 1	1	22: 1
36"	14	14	19	6	60	72	2	22: 1	36: 1	2	22: 1
42"	12	16	22	11	69	84	2	22: 1	42: 1	2	22: 1
48"	12	18	27	12	78	90	2	22: 1	48: 1	2	22: 1
54"	12	18	30	12	84	102	2	22: 1	54: 1	2	22: 1
60"	12 & 10	18	33	12	87	114	3	2: 1	60: 1	3	2: 1
66"	12 & 10	18	36	12	87	120	3	2: 1	66: 1	3	2: 1
72"	12 & 10	18	39	12	87	126	3	2: 1	72: 1	3	2: 1
78"	12 & 10	18	42	12	87	132	3	12: 1	78: 1	3	12: 1
84"	12 & 10	18	45	12	87	138	3	12: 1	84: 1	3	12: 1
90"	12 & 10	18 & 24	47 & 45	11 & 12	87	138 & 144	3	12: 1	90: 1	3	12: 1
96"	12 & 10	18 & 25	45 & 45	12	87	138 & 150	3	12: 1	96: 1	3	12: 1



- Channel band couplers shall:
1. Be of two piece design.
 2. Be fabricated from galvanized steel stock.
 3. Be 14 ga. thickness for pipe 12 ga. or lighter. (A= 2")
 4. Be 12 ga. thickness for pipe 10 ga. or heavier. (A= 1")
 5. Have 2" x 2" x 2" angles securely fastened to the band ends to allow for proper tightening.



▲ Note: At the Contractor's option, 5"x1" corrugated steel pipe of equal gauge may be substituted for the 3"x1" corrugated steel pipe listed in the table with the following restrictions:

1. Fill height over top of pipe shall be less than 25 ft.
2. Pipe shall be fabricated with helical corrugations and lock seams or continuous welded seams.

PIPE CULVERT SUMMARY																
Station	Location	Type	Size or Bid Designation Sq. Ft.	Crown Grade Elev.	Flow Line		Horizontal Roadway		Degree of Rotation	Length of Pipe		Lin. Ft. of Pipe	End Sections			
					Lt.	Rt.	Lt.	Rt.		Lt.	Rt.		Type I	Type II	Type III	Type IV
0+30.00	CL	CMP	18"	—	86.55	86.10	—	—	—	26.5'	16.5'	43'	1	1	—	—
NW Corner of Parking Lot	CL	CMP	18"	—	86.90(N)	86.60(S)	—	—	—	14'	14'	28'	1	1	—	—

METAL END SECTIONS
CED PROJ. NO.: 20020900
CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH.(316)262-8808 FAX.(316)262-1669

DESIGNED: HDF
DRAWN: CKW
CHECKED: HDF

SCALE: NTS
DATE: 7/02
CED FILE: CMPdetails.dwg

SHEET
9
TOTAL 16