

WATERLINE RELOCATION

DRAWING INDEX

<u>SHEET NO.</u>	<u>TITLE</u>
WS_G-001	WATERLINE RELOCATION COVER SHEET
WS_G-002	GENERAL NOTES AND LEGEND
WS_G-003	SURVEY CONTROL
WS_CU101	WATERLINE RELOCATION SITE PLAN
WS_CU201	WATERLINE RELOCATION PLAN AND PROFILE
WS_CU501	WATERLINE RELOCATION DETAILS
WS_CU502	WATERLINE RELOCATION DETAILS
WS_CU503	WATERLINE RELOCATION DETAILS
WS_CU504	WATERLINE RELOCATION DETAILS

PROFESSIONAL ENGINEER SE

FOR WSD U

COVER SHEET

DRAWN BY		CHECKED BY	MAP NO.	RANGE	TWP	SEC
			NA	NA	NA	NA
			MAP NO.	RANGE	TWP	SEC
CONTRACTOR		DATE COMPLETED	MAP NO.	RANGE	TWP	SEC
			NA	NA	NA	NA
			MAP NO.	RANGE	TWP	SEC
CONTRACT NO.		CONTRACT DATE	DATE	WORK ORDER NO.	DRAWING NO.	
PROJECT NO.						

AS BUILT

WATERLINE RELOCATION
COVER SHEET

Sheet
Reference
Number:

WS
G-001

[illegible]

Designed by:	Date:
Drawn by:	File number:
Checked by:	Plot scale: 1:1
Submitted by:	CADD File Name:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS AND RELOCATIONS OF THE KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT.

2. THE CONTRACTOR SHALL POTHOLE AND EXPOSE ALL TIE-IN AND CROSSING LOCATIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL FITTINGS REQUIRED TO PROVIDE PROPER HORIZONTAL AND VERTICAL ALIGNMENT FOR NEW WATER MAINS, CONNECTIONS TO EXISTING WATER MAINS AND INSTALLATION OF FIRE HYDRANTS AT THE PROPER LOCATION AND ELEVATION, WHETHER OR NOT THE PROPER FITTINGS, LOCATION OR ELEVATIONS ARE CALLED OUT ON THE DRAWINGS, INCLUDING MODIFICATION OF EXISTING INFRASTRUCTURE REQUIRED TO MAKE ALL OF THE WORK CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS AND RELOCATIONS OF THE KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT.

3. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY BLOW-OFF ASSEMBLIES, FITTINGS, THRUST BLOCKING, AND RESTRAINING DEVICES REQUIRED FOR TEMPORARY CONNECTIONS FOR FLUSHING, PRESSURE TESTING, CHLORINATION, AND DE-CHLORINATION OF THE NEW WATER MAINS. PRIOR TO PLACING NEW MAINS IN SERVICE THE CONTRACTOR SHALL REMOVE ANY INCORPORATION COCKS USED FOR TESTING OR CHLORINATION AND REPLACE THEM WITH TAPERED BRASS PLUGS.

4. THE CONTRACTOR SHALL INSTALL POLYETHYLENE ENCASEMENT ON ALL DIRECT BURIED WATER MAINS, VALVES, FITTINGS, AND OTHER APPURTENANCES FOR THE FULL LENGTH OF THE PROJECT IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS AND RELOCATIONS OF THE KANSAS CITY, MISSOURI WATER SERVICES DEPARTMENT.

5. SCHEDULING OF WATER MAIN SHUTS AND CONNECTION TO EXISTING MAINS SHALL BE COORDINATED WITH AND AT THE DISCRETION OF THE CONTRACTING OFFICER AND THE WATER SERVICES DEPARTMENT.

6. ALL FIRE HYDRANT BRANCHES SHALL BE RESTRAINED USING APPROVED RESTRAINING DEVICES. HYDRANTS SHALL BE INSTALLED SO THAT THE CENTERLINE OF THE OUTLET NOZZLE IS BETWEEN EIGHTEEN AND TWENTY-ONE INCHES (18" - 21") ABOVE FINISHED GRADE, AND SO THAT THERE IS A MINIMUM CLEAR AREA OF 5' IN EACH DIRECTION TO ALLOW OPERATION OF THE HYDRANT.

7. SECTIONS OF WATER MAIN REQUIRING MULTIPLE BENDS, SUCH AS CUL-DE-SACS, SHALL BE RESTRAINED WITH APPROVED JOINT RESTRAINING DEVICES AND STRADDLE BLOCKS IN LIEU OF BACKING BLOCKS.

8. THE LOCATIONS OF EXISTING UTILITIES, AS SHOWN, ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES. CONTRACTORS SHALL POTHOLE AND EXPOSE ALL UTILITIES (INDICATED ON THE DRAWINGS, LOCATED AT GRADE BY A UTILITY LOCATING SERVICE, OR EVIDENT FROM UTILITY COMPANY INFORMATION) AT LEAST 500 FEET IN ADVANCE OF WATER MAIN CONSTRUCTION, DETERMINING THE DEPTH, SIZE, AND MATERIAL OF THE UTILITIES IN PROXIMITY TO THE PROPOSED WATER MAIN ALIGNMENT. CONTRACTOR SHALL PROVIDE THIS INFORMATION TO THE ENGINEER & ADVISE OF ANY POTENTIAL CONFLICTS WITH THE PROPOSED PIPELINE ALIGNMENT. DEFLECT PIPE TO MAINTAIN MINIMUM 5 FEET HORIZONTAL AND 18 INCH VERTICAL CLEARANCES BETWEEN PROPOSED WATER MAIN AND ALL EXISTING UTILITIES.

9. THE CONTRACTOR SHALL COMPLY WITH STATE LAW REQUIRING ANY PERSON OR FIRM DOING EXCAVATION ON THE PUBLIC RIGHT-OF-WAY DO SO ONLY AFTER GIVING NOTICE TO AND OBTAINING INFORMATION FROM UTILITY COMPANIES.

10. STREETS AND PARKING AREAS ARE TO BE TO GRADE AND CURBS IN PLACE PRIOR TO CONSTRUCTION OF WATER MAINS. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM GROUND COVER OF 42 INCHES BELOW FINISHED GRADE. SIXTEEN (16)-INCH AND LARGER WATER MAINS SHALL BE INSTALLED WITH A MINIMUM GROUND COVER OF 60 INCHES BELOW FINISHED GRADE.

11. WATER MAINS SHALL BE LAID AT LEAST 10 FEET, HORIZONTALLY FROM ANY SEWER, WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET. A WATER MAIN MAY BE LAID CLOSER THAN 10 FEET TO A SEWER, PROVIDED THAT THE WATER MAIN IS LAID IN A SEPARATE TRENCH, OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER, AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER. WATER MAINS SHALL BE LAID SUCH THAT THERE IS A MINIMUM OF 18 INCHES CLEARANCE BETWEEN THE PIPE WALL AND THE EXTERIOR OF ANY MANHOLE AND/OR INLET ON THE SEWER LINE.

WHENEVER A WATER MAIN MUST CROSS ABOVE A SEWER, A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE SEWER SHALL BE MAINTAINED. WHENEVER A WATER MAIN MUST CROSS UNDER A SEWER, A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE SEWER AND THE TOP OF THE WATER MAIN SHALL BE MAINTAINED. A FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ON THE SEWER TO BE CROSSED SO THAT THE JOINTS WILL BE EQUALLY DISTANT FROM THE SEWER AND AS FAR AWAY AS POSSIBLE. THE 18-INCH VERTICAL SEPARATION SHALL BE MAINTAINED FOR THAT PORTION OF THE WATER MAIN LOCATED WITHIN 10 FEET, HORIZONTALLY, OF ANY SEWER IT CROSSES.

WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL SEPARATION AS STIPULATED ABOVE, OR WHEN A WATER MAIN MUST CROSS UNDER A SEWER, THE SEWER MUST BE RECONSTRUCTED OF DUCTILE IRON PIPE MEETING THE REQUIREMENTS OF SECTION 02618 OF THE STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS AND RELOCATIONS; PRE-STRESSED CONCRETE CYLINDER PIPE MEETING THE REQUIREMENTS OF SECTION 02619; OR PVC PRESSURE PIPE CONFORMING TO AWWA C-900 OR C-905, AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS BEFORE BACKFILLING. THE REQUIRED LENGTH OF SEWER TO BE REPLACED OR CONSTRUCTED OF PRESSURE PIPE WILL BE THE LENGTH NECESSARY TO ACHIEVE 10 FEET HORIZONTAL SEPARATION.

WHERE THESE CONDITIONS CANNOT BE MET, THE WATER SERVICES DEPARTMENT SHALL BE CONSULTED AS TO THE PRECAUTIONS TO BE TAKEN TO PROTECT THE PUBLIC WATER SUPPLY.

FOR ALL SANITARY AND STORM SEWER CROSSINGS REFER TO STANDARDS AND SPECIFICATIONS FOR WATER MAIN EXTENSIONS AND RELOCATIONS: STANDARD DETAILS #01016-1, #01016-2, #01016-3, #01016-6-4, AND #01016-5 AS REQUIRED.

12. AN EXCAVATION PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO COMMENCING CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY. CONTACT THE PUBLIC WORKS DEPARTMENT PERMIT COUNTER AT CITY HALL.

13. ALL WORK SHALL CONFORM TO THE LATEST REVISION OF THE KANSAS CITY, MISSOURI EROSION AND SEDIMENT CONTROL SPECIFICATIONS, WHICH ARE MADE A PART HEREOF BY REFERENCE. EROSION CONTROL PLANS SHALL BE SUBMITTED TO THE CITY ENGINEER, PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE START OF THIS PROJECT.

14. ALL ABANDONED WATER MAINS WITHIN THE FOOTPRINT OF THE LEVEE SHALL BE COMPLETELY FILLED WITH NON-SHRINK GROUT. AT OTHER LOCATIONS, THE ENDS OF ABANDONED WATER LINES SHALL BE PLUGGED WITH CONCRETE.

15. COVERS, LIDS, AND STANDPIPES ON ALL ABANDONED VALVES SHALL BE REMOVED TO AT LEAST TWO FEET (2') BELOW GRADE AND THE AREA SHALL BE PROPERLY BACKFILLED. IN PAVED AREAS REMOVAL OF VALVE LID AND FILLING OF VALVE BOX WITH CONCRETE MAY BE ALLOWED AT WATER SERVICES DEPARTMENT DISCRETION.

16. EXISTING FIRE HYDRANTS THAT ARE REMOVED SHALL BE RETURNED TO THE WATER SERVICES DEPARTMENT STORE YARD AT 2409 E. 18TH ST.

17. WATER SERVICE LINES CONNECTED TO MAINS BEING ABANDONED SHALL BE RECONNECTED TO NEW MAINS IN ACCORDANCE WITH THE RULES AND REGULATIONS FOR WATER SERVICES LINES OF THE WATER SERVICES DEPARTMENT, UNLESS SHOWN OTHERWISE. EXISTING WATER SERVICE LINES BEING TRANSFERRED TO NEW MAINS WILL BE UPGRADED TO MEET CURRENT REGULATIONS.

18. THE CONTRACTOR SHALL VERIFY THE OUTSIDE DIAMETER (O.D.) OF THE EXISTING WATER MAIN PRIOR TO SCHEDULING CONNECTION. PROVIDE SOLID SLEEVES AS REQUIRED.

19. CONTRACTORS SHALL PROTECT EXISTING POWER POLES AND LIGHT POLES FROM DAMAGE AND SHALL PROVIDE BRACING, SHORING, OR OTHER WORK NECESSARY FOR SUCH PROTECTION. ANY STRUCTURES REMOVED DURING CONSTRUCTION OPERATIONS SHALL BE REPLACED.

20. WATER LINE WORK SHALL BE PERFORMED DURING OFF PEAK TIME _____ OUTAGE SHALL BE LIMITED TO 8 HOURS AND SHALL BE COORDINATED WITH CONTRACTING OFFICER AND UTILITY OWNER PER SPECIFICATIONS.

21. CONTRACTOR SHALL PROTECT AND SUPPORT EXISTING 30" PCCP WATER LINE DURING CONSTRUCTION.

22. CONTRACTOR TO MEET ALL SUBMITTAL REQUIREMENTS AS WRITTEN IN THE SPECIFICATIONS PRIOR TO BEGINNING RELOCATION WORK.

	EXISTING	PROPOSED
CONSTRUCTION LIMITS		
WATER	---Wx---	---W---
STORM	---SD---	---SD---
GAS	---G---	---G---
SANITARY SEWER	---SSx---	---SS---
OVERHEAD ELEC	---OE---	---OE---
UNDERGROUND ELEC	---BE---	---BE---
COMMUNICATIONS	---C---	---C---
FENCE	---X---	---X---
TREE LINE		
MAJOR CONTOURS		
MINOR CONTOURS		
ELEC. MANHOLE		
FIRE HYDRANT		
TRANSFORMER		
GAS VALVE		
GAS METER		
POWER POLE		
POWER POLE W/TRANSFORMER		
WATER METER		
POWERPOLE W/ST. LIGHT		
STORM DRAIN		
STREET LIGHT		
STRADDLE BLOCK		
GUY WIRE		
BOLLARD		
GATE		
SANITARY SEWER MANHOLE		
TELEPHONE MANHOLE		
TREE		
WATER VALVE		
CURB INLET (CI)		
DROP INLET (DI)		
BORE HOLE LOCATION		C-5
TEST PIT LOCATION		TP-5
1 VERTICAL ON 4 HORIZONTAL		1 ON 4
DITCH/CHANNEL FLOW PATH		
DYNAMIC COMPACTION LIMITS		

ON 4	1 VERTICAL ON 4 HORIZONTAL
APPROX	APPROXIMATELY
BF	BASEMENT FLOOR
BM	BENCHMARK
BOL	BOLLARD
BOT	BOTTOM
BTM	BOTTOM
CIP	CAST IRON PIPE
CO	CORRUGATED METAL PIPE
CO	CONTROL POINT
CP	CLEANOUT
COG	CHORD GRASS
CONC	CONCRETE
COR	CONTRACTING OFFICER REPRESENTATIVE
DIP	DUCTILE IRON PIPE
E	ELECTRIC
E	EAST
E	ELEVATION
ELEV	ELEVATION
EM	ELECTRIC METER
FF	FINISH FLOOR
FL	FLOW LINE
FM	FORCE MAIN
FO	FIBER OPTICS
GCL	GEOSYNTHETIC CLAY LINER
GI	GRATE INLET
GV	GATE VALVE
HDWL.	HEADWALL
JB	JUNCTION BOX
KCS	KANSAS CITY, KANSAS
LP	LIGHT POLE
LPG	LIQUID PETROLEUM GAS
M	MONOLITH
MH	MANHOLE
MW	MONITORING WELL
N	NORTH
NPW	NON-POTABLE WATER
NTE	NOT TO SCALE
OHS	OVERHEAD ELECTRIC
PP	POWER POLE
PROJ.	PROJECT
PVC	POLYVINYL CHLORIDE
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
S	SOUTH
SD	STORM DRAIN
SPG	SHORT PRAIRIE GRASS
SSMH	SANITARY SEWER MANHOLE
SS	SANITARY SEWER
TBM	TEMPERARY BENCHMARK
TP	TOP OF PIPE
TEPD	TELEPHONE PEDESTAL
TPG	TALL PRAIRIE GRASS
TW	TOP OF WALL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGS	UNDERGROUND ELECTRICAL SERVICE
UGT	UNDERGROUND TELEPHONE
UKN	UNKNOWN
UP	UTILITY POLE
UTY	UTILITY
VCP	VITRIFIED CLAY PIPE
W	WATER
W	WEST
WMH	WATER MANHOLE
WSD	WATER SERVICES DEPARTMENT

[illegible]

	Designed by:	Date:
	Drawn by:	File number:
	Checked by:	Plot scale: 1:1
	Submitted by:	CADD File Name:

Sheet
Reference
Number:
**WS
G-002**

**WATERLINE RELOCATION
GENERAL NOTES AND LEGEND**

PROFESSIONAL ENGINEER SEAL

FOR WSD USE:

GENERAL NOTES AND LEGEND

		MAP NO. NA	RANGE NA	TWP NA	SEC NA
		MAP NO. NA	RANGE NA	TWP NA	SEC NA
DRAWN BY	CHECKED BY	MAP NO. NA	RANGE NA	TWP NA	SEC NA
CONTRACTOR			DATE COMPLETED		
CONTRACT NO.	CONTRACT DATE	DATE	WORK ORDER NO.	DRAWING NO.	
PROJECT NO.					

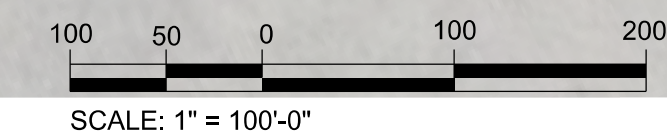
AS BUILT

AZIMUTH MARK: JA-117A



POINT LIST

ID	NORTHING (US SURVEY FOOT)	EASTING (US SURVEY FOOT)	ELEVATION (US SURVEY FOOT)	DESCRIPTION
JA-117A	1022022.540	2774883.912	788.739	CONCRETE MONUMENT
JA-117	1022840.504	2773140.306	840.700	CONCRETE MONUMENT



FOR WSD USE:

		MAP NO.	NA	RANGE	NA	TWP	NA	SEC	NA
		MAP NO.	NA	RANGE	NA	TWP	NA	SEC	NA
DRAWN BY	CHECKED BY	MAP NO.	NA	RANGE	NA	TWP	NA	SEC	NA
CONTRACTOR					DATE COMPLETED				
CONTRACT NO.	CONTRACT DATE	DATE	WORK ORDER NO		DRAWING NO.				
PROJECT NO.									

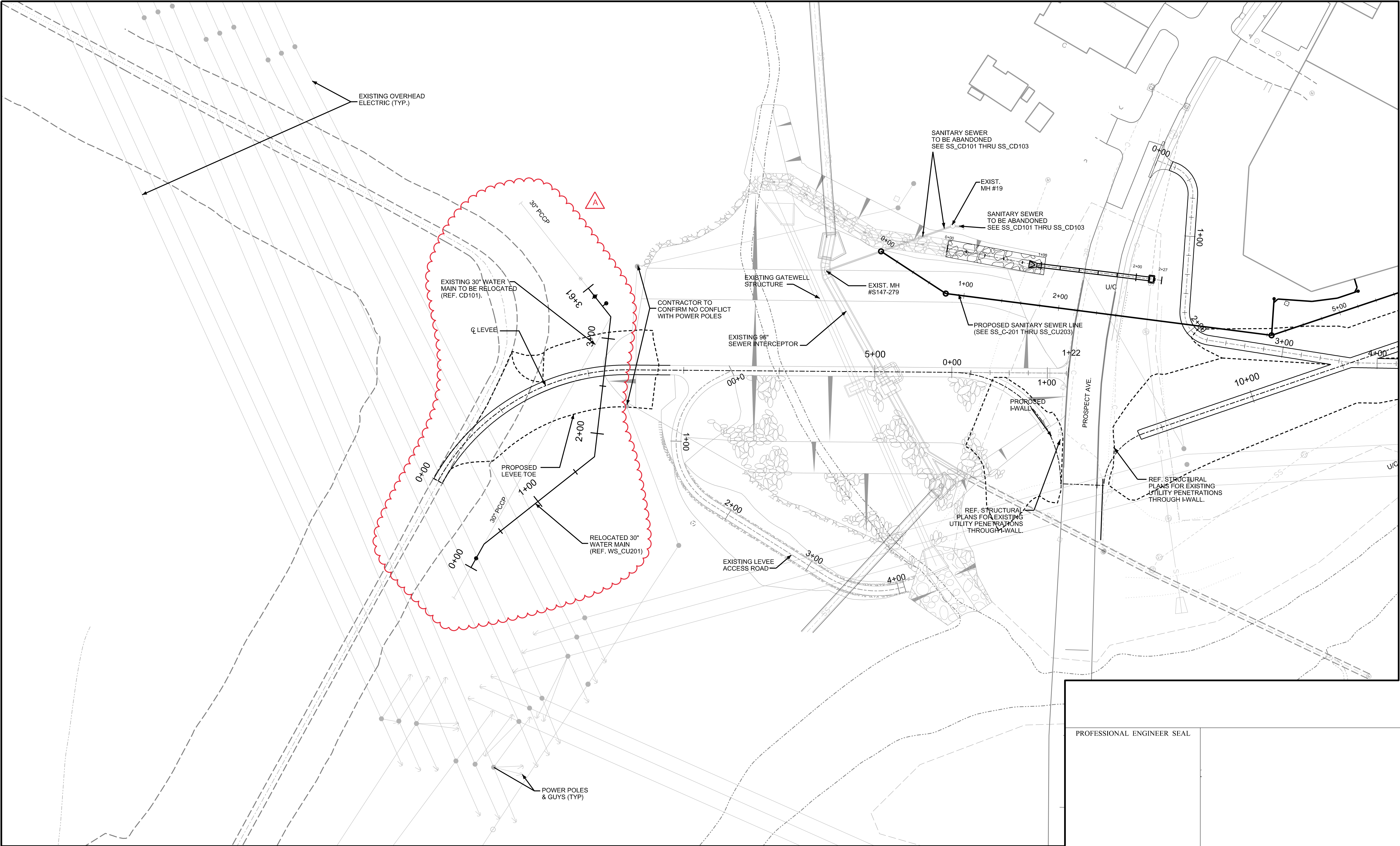
AS BUILT

Sheet
Reference
Number:

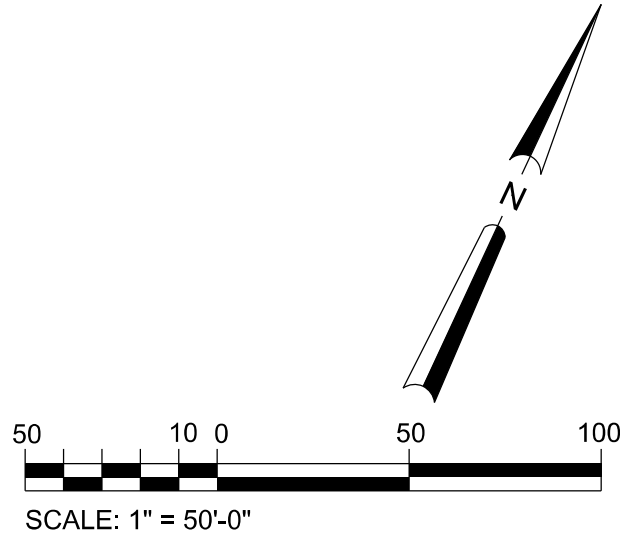
WS
G-003

APPROVED FOR CONSTRUCTION

SYM	
-----	--



- SHEET NOTES:
1. FOR GENERAL NOTES, SEE SHEET WS_G-002.
 2. FOR OVERALL PLAN VIEW, SEE SHEET WS_G-003.
 3. FOR LEVEE CENTERLINE ALIGNMENT DATA, SEE DODSON PROJECT SHEET G-008.
 4. FOR BORING LOGS, SEE DODSON PROJECT SHEETS B-201 THROUGH B-207 AND B-301 THROUGH B-315.
 5. FOR TYPICAL LEVEE SECTIONS, SEE DODSON PROJECT SHEETS CG301.
 6. FOR DEMOLITION ITEMS, SEE DODSON PROJECT SHEET CD101.



PROFESSIONAL ENGINEER SEAL

FOR WSD USE:

SITE PLAN

		MAP NO. NA		RANGE NA		TWP NA		SEC NA			
		MAP NO. NA		RANGE NA		TWP NA		SEC NA			
		MAP NO. NA		RANGE NA		TWP NA		SEC NA			
DRAWN BY		CHECKED BY		MAP NO. NA		RANGE NA		TWP NA		SEC NA	
CONTRACTOR							DATE COMPLETED				
CONTRACT NO.		CONTRACT DATE		DATE		WORK ORDER NO.		DRAWING NO.			
PROJECT NO.							JOB NAME				

AS BUILT

APPROVED FOR CONSTRUCTION		DATE	APPR.
AS BUILT		DATE	APPR.

Designed by:	Date:
Drawn by:	File number:
Checked by:	Plot scale:
Submitted by:	CADD File Name:

WATERLINE RELOCATION
SITE PLAN

Sheet
Reference
Number:
**WS
CU101**



NTS



STRADDLE BLOCK SCHEDULE				
TRENCH WIDTH	"W"	"H"	"H1"	REBAR
5'	21'	8'	4'	#7

NTS

[illegible]

	Unassigned by:	Lotus:
	Drawn by:	File number:
	Checked by:	Plot scale:
	Submitted by:	1:1
		CAAD File Name:

WATERLINE RELOCATION DETAILS

Sheet
Reference
Number:

WS
CU501

		MAP NO. NA	RANGE NA	TWP NA	SEC NA
		MAP NO. NA	RANGE NA	TWP NA	SEC NA
DRAWN BY	CHECKED BY	MAP NO. NA	RANGE NA	TWP NA	SEC NA
CONTRACTOR			DATE COMPLETED		
CONTRACT NO.	CONTRACT DATE	DATE	WORK ORDER NO.	DRAWING NO.	
PROJECT NO.					

AS BUILT



30" BUTTERFLY VALVE

1 - STRADDLE BLOCK

INSTALL 1 - 30" - 22.5" BEND

EXIST 30" PCCP WATER MAIN TO BE REMOVED

1 - PCCP TO DIP ADAPTER

SOLID SLEEVE

SOLID SLEEVE

30" DIP WATER MAIN



A diagram showing a circular hole in a wall. The wall is represented by a cross-hatched pattern. Above the wall, there are horizontal lines. A vertical line passes through the center of the circle, and a horizontal line passes through the center of the circle, intersecting at the center.


 WATER MAIN TYPICAL BEDDING DETAIL
 CU502 CU502 N.T.S.

COMPACTED IMPERVIOUS BACKFILL

[illegible]

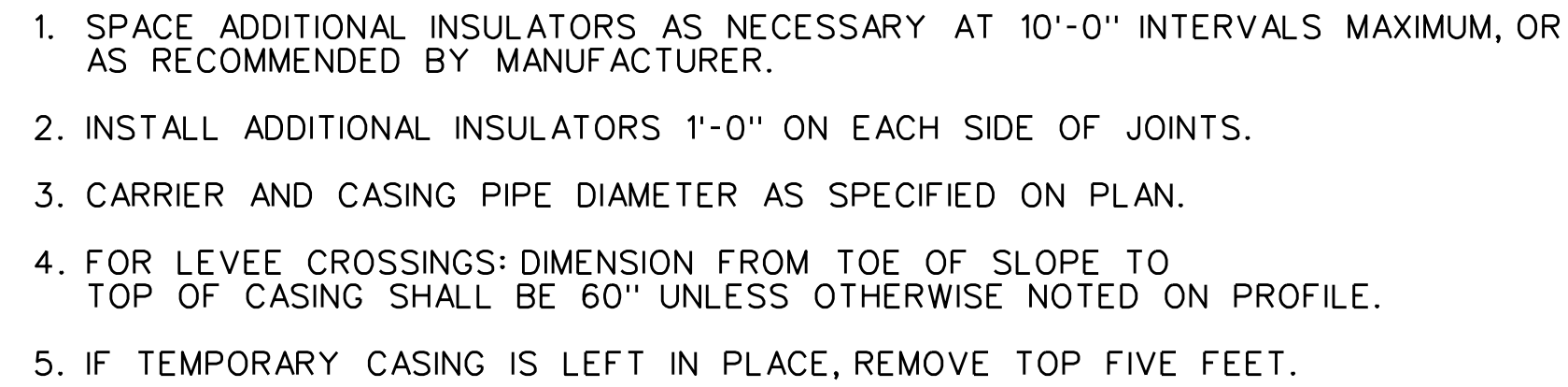
	Drawn by:	File number:
	Checked by:	Plot scale: 1:1
	Submitted by:	CADD File Name:

WATERLINE RELOCATION DETAILS

WS
CU502

		MAP NO. NA	RANGE NA	TWP NA	SEC NA
		MAP NO. NA	RANGE NA	TWP NA	SEC NA
DRAWN BY	CHECKED BY	MAP NO. NA	RANGE NA	TWP NA	SEC NA
CONTRACTOR			DATE COMPLETED		
CONTRACT NO.	CONTRACT DATE	DATE	WORK ORDER NO	DRAWING NO.	
PROJECT NO.			JOB NO.		

AS BUILT



Sheet
Reference
Number:

WS
CU503

AS BUILT