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PUBLIC LAW 86-121 PROJECT
PROJECT NO. AN-86-340

RECORD DRAWINGS

THESE DRAWINGS REFLECT
REQUIRED REINTEGRATION
OF THE FOLLOWING
COMMENTS:

THESE DRAWINGS WERE
RECEIVED BY THE
RECORDS SECTION OF
THE ALASKA DEPARTMENT
OF CORRECTIONS
ON 11/11/11
DATE 11/11/11
NAME [Signature]

LEGEND AND GENERAL NOTES

SITE PLAN

EXISTING

	STRUCTURES
	ROADS (PAVED)
	ROADS (UNPAVED)
	POWER LINE
	R.O.W. & PROPERTY LINE
	COMMUNICATIONS LINE
	CLEANOUT
	SEWER LINE
	WATER LINE
	FORCE MAIN
	FIRE HYDRANT, IN-LINE
	FIRE HYDRANT, OFFSET
	MANHOLE
	VALVE
	POL LINE (FUEL OIL)
	LIFT STATION W/BUILDING
	WELL
	FENCE
	UTILIDOR
	RACEWAY
	RAILROAD
	BENCHMARK
	TEST HOLE
	ELEVATION
	SEPTIC TANK
	LEACHFIELD
	CORPORATION STOP
	BRASS CAP
	WATERING POINT
	POWER POLE
	CURB STOP
	SALT WATER

C. I. - CAST IRON
G. I. - GALVANIZED IRON
VT - CLAY
TRANSITE - CONCRETE

PROPOSED THIS PROJECT

	STRUCTURES
	ROADS (PAVED)
	ROADS (UNPAVED)
	POWER LINE
	R.O.W. & PROPERTY LINE
	COMMUNICATIONS LINE
	CLEANOUT
	SEWER LINE
	WATER LINE
	FORCE MAIN
	FIRE HYDRANT, IN-LINE
	FIRE HYDRANT, OFFSET
	MANHOLE
	VALVE
	POL LINE (FUEL OIL)
	LIFT STATION W/BUILDING
	WELL
	FENCE
	UTILIDOR
	RACEWAY
	RAILROAD
	BENCHMARK
	TEST HOLE
	ELEVATION
	SEPTIC TANK
	LEACHFIELD
	CORPORATION STOP
	BRASS CAP
	WATERING POINT
	POWER POLE
	CURB STOP
	SALT WATER

MECHANICAL

	PRIMARY SYSTEM
	HOT WATER LINES
	HOT WATER RETURN LINES
	DRAIN & OVERFLOW LINE
	COLD WATER MAKE-UP LINE
	BY-PASS LINE
	BACK WASH LINE
	COLD WATER LINES
	LOW WATER CUT-OFF
	CHEMICAL PUMP
	CIRCULATING PUMP
	WATER METER
	GATE VALVE
	CHECK VALVE
	UNION
	DIELECTRIC UNION
	AUTOMATIC AIR RELIEF
	PRESSURE RELIEF VALVE
	ADAPTOR
	FLEX PIPE
	FLEX COUPLING
	AQUASTAT
	FLOW SWITCH
	PRESSURE SWITCH
	THERMOMETER
	PRESSURE REDUCING VALVE
	PRESSURE GAUGE
	FLOW INDICATOR
	THERMOFLO INDICATOR
	CIRCUIT SETTER
	DIRECTION OF FLOW
	VACUUM BREAKER
	TANK LEVEL INDICATOR

PIPE FITTING & VALVE SYMBOLS

	ANGLE VALVE		90° LONG RADIUS ELBOW
	CAP		VICTAULIC COUPLING
	CROSS		VACUUM BREAKER
	ELBOW (ELL), 45°		FLOOR DRAIN
	ELBOW, 90°		BALL VALVE
	LATERAL		CHECK BALL VALVE
	TEE		SOLENOID VALVE
	STRAINER		MOTORIZED VALVE
	DIELECTRIC FLANGE PKG.		MOTORIZED 3-WAY VALVE
	FLANGE JOINT		GLOBE VALVE
	SCREWED JOINT		BALANCING VALVE
	WELDED JOINT		AUTO. TEMP CONTROL VALVE
	SOLDERED JOINT		AUTO. TEMP CONTROL VALVE
	SLEEVE		QUICK OPENING VALVE
	DRESSER COUPLING		FUSIBLE VALVE
	EXPANSION JOINT		BUTTERFLY VALVE
	REDUCER, CONCENTRIC		FLOW CONTROL VALVE
	REDUCER, ECCENTRIC		PLUG VALVE
	HOSE BIBB W/BACKFLOW PREVENTER		ELL
	MINITROL		

ELECTRICAL

	CONDUIT, SURFACE MOUNTED
	CONDUIT, BURIED OR IN-SLAB
	HOMERUN TO CIRCUIT BREAKER PANEL
	CONDUIT W/NO. OF WIRES INDICATED, ONE NEUTRAL, TWO HOT, AWG 12, CU
	INCANDESCENT FIXTURE
	INCANDESCENT FIXTURE, WALL MOUNTED
	FLUORESCENT FIXTURE
	VAPOR TIGHT LIGHT FIXTURE
	HIGH PRESSURE SODIUM LIGHT FIXTURE
	INCANDESCENT FIXTURE, RECESSED
	FLUORESCENT FIXTURE, RECESSED
	DUPLEX RECEPTACLES
	QUADRAPLEX RECEPTACLES
	SPECIAL PURPOSE RECEPTACLES
	SINGLE POLE SWITCH
	3-WAY SWITCH
	JUNCTION BOX
	THERMOSTAT
	TRANSFORMER
	AQUASTAT
	PHOTO CELL
	RELAY
	MOTOR OPERATED VALVE (ZONE VALVE)
	SOLENOID VALVE
	CONTROLLER
	MOTOR STARTER, MANUAL
	MOTOR STARTER, MAGNETIC
	SWITCHING PANEL
	CIRCUIT BREAKER PANEL
	ALARM PANEL
	HEAT DETECTOR
	SMOKE DETECTOR
	BELL
	ALARM HORN
	METER BASE
	MOTOR W/HORSEPOWER INDICATED
	FLOAT SWITCH
	PRESSURE SWITCH
	FLOW SWITCH
	UNIT HEATER
	EMERGENCY LIGHT
	EXIT LIGHT
	SYSTEM GROUND
	THERMOSTAT
	SWITCHED RECEPTACLE
	PUSH-BUTTON SWITCH
	FAN
	FIXTURE W/PULL CHAIN
	SWITCH W/TIMER
	TELEPHONE OUTLET
	COPPER

NOTES

CIVIL

1. MINIMUM VERTICAL SEPARATION BETWEEN WATER LINE & SEWER LINE AT THE CROSSING POINT SHALL BE 18".
2. MINIMUM HORIZONTAL SEPARATION BETWEEN WATER LINE & SEWER LINE SHALL BE 10.0'.
3. MINIMUM BURY ON WATER LINE SHALL BE 4'.
4. LOCATION OF ALL WELLS, SEPTIC TANKS, MANHOLES, CLEANOUTS, VALVES, ETC. SHALL BE REFERENCED TO THREE PERMANENT ABOVE GROUND STRUCTURES.
5. CLEANOUTS, LEACHFIELDS AND SEPTIC TANKS ARE NUMBERED ACCORDING TO CORRESPONDING MANHOLE, i.e., MH-1, ST-1A, LF-1A AND CO-1A.

MECHANICAL

1. ALL EXPOSED PIPING SHALL BE PAINTED USING THE FOLLOWING COLOR CODE:
GREEN - RAW WATER
BLUE - POTABLE WATER
BLACK - HEATING
RED - FIRE
BROWN - SEWAGE
GRAY - COMPRESSED AIR
ORANGE - FUEL
YELLOW - WASTE HEAT RECOVERY
2. TYPE OF PAINT TO BE USED SHALL BE GARLOCK OR APPROVED EQUAL.
3. DIRECTION OF FLOW SHALL BE INDICATED BY ARROWS AND A NAME PLATE SHALL BE ATTACHED DESCRIBING MATERIAL BEING CARRIED.
4. ALL PIPING SHALL BE COPPER UNLESS OTHERWISE INDICATED.
5. ALL SOLDER CONNECTIONS SHALL BE MADE W/TIN-ANTIMONY 95-5 SOLDER.
6. ALL HOT WATER LINES SHALL BE INSULATED.
7. ALL PIPE SUPPORTS AND HANGERS SHALL HAVE 1/2" INSULATION BETWEEN COPPER PIPE AND SUPPORTS OR HANGERS.

ELECTRICAL

1. CLEAR AREA REQUIRED FOR ELECTRICAL PANELS:
36" FROM FACE OF PANEL
75" FROM FLOOR UP TO FIRST OBSTRUCTION
15" CLEAR EACH SIDE FROM CENTER LINE OF PANEL
2. GROUND SYSTEM NEUTRAL AND ALL METALLIC SURFACES PER 1984 NATIONAL ELECTRICAL CODE (N.E.C.).
3. ALL WIRING SHALL BE IN CONDUIT.

RECORD DRAWINGS



3-24-89	RECORD DRAWING	J.C.
DATE	REVISIONS	INITIALS

U. S. Department of Health, & Human Services
Public Health Service
Indian Health Service

ST. PAUL, ALASKA

LEGEND & NOTES
PUBLIC LAW 86-121 PROJECT
PROJECT NO. AN - 86 - 340

SHEET NO. 24
L-1
OF 1
TOTAL SHEETS

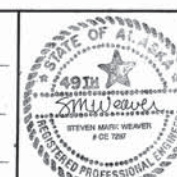
DRAWN BY: LOWDERMILK DATE: 9/82 / 11-86	CHECKED BY: DATE:
SANITATION FACILITIES CONSTRUCTION BRANCH ENVIRONMENTAL HEALTH BRANCH ALASKA AREA NATIVE HEALTH SERVICE ANCHORAGE, ALASKA	

NOTE:
SEE SHEET D-2 FOR PROJECT SCOPE OF WORK.



RECORD DRAWINGS	
	THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED BY THE CONSTRUCTION.
NAME: <u>Douglas C. Orr</u>	PROFESSION PROVIDED BY THE STATE OF ALASKA TO THE BEST OF MY KNOWLEDGE.
DATE: <u>4/2/87</u>	

<u>Paul M. Loh</u> Design Engineer
<u>Lee J. Fry</u> Maintenance Review
Material Take-off



RECORD DRAWING		
DATE	REVISIONS	INITIALS
U. S. Department of Health, & Human Services Public Health Service Indian Health Service		
ST. PAUL, ALASKA		
AERIAL PHOTO		
PUBLIC LAW 86-121 PROJECT PROJECT NO. AN - 86 - 340		
SHEET NO. D-1 OF 2 TOTAL SHEETS		
DRAWN BY: PCS / LOWDERMILK DATE: 8/30/85 / 11 - '86		
CHECKED BY: _____ DATE: _____		
SANITATION FACILITIES CONSTRUCTION BRANCH ENVIRONMENTAL HEALTH BRANCH ALASKA AREA NATIVE HEALTH SERVICE ANCHORAGE, ALASKA		



SCOPE OF WORK

THIS PROJECT WILL UNIFY THE SEWER SYSTEMS OF THE COMMUNITY INTO A COMMON DISCHARGE POINT THROUGH THE OCEAN OUTFALL. IN ADDITION, THE WATER SYSTEM WILL BE UPGRADED BY LOOPING WATER MAINS TO PROVIDE BETTER WATER SERVICE TO THE HOMES IN THE COMMUNITY. THE MAJOR ITEMS OF CONSTRUCTION ARE AS FOLLOWS:

1. INSTALL APPROXIMATELY 2650 FEET OF 6" D.I. WATER MAIN WITH FIRE HYDRANTS ON KING STREET, CHURCH STREET, BARANOFF STREET, GORBATCH STREET, RIM ROCK DRIVE, SEAVIEW STREET AND EGAN STREET.
2. INSTALL NEW WATER SERVICE LINES FOR 68 HOMES.
3. INSTALL APPROXIMATELY 2670 FEET OF 8" D.I. SEWER MAIN WITH MANHOLES.
4. INSTALL 3 COMMUNITY SEPTIC TANKS.
5. INSTALL WET WELL/DRY WELL LIFT STATION.
6. EXISTING LIFT STATIONS AND SEPTIC TANKS (WHERE NOTED) TO BE PUMPED, FILLED WITH DIRT AND ABANDONED.
7. REPLACE VALVES AT WATER STORAGE TANK.

DESIGN CRITERIA

DOWNTOWN AREA :

POPULATION ————— 551 RESIDENTS (1980 CENSUS)
EXISTING HOMES ————— 88 EACH

WATER - EXISTING

WATER SOURCE ————— 2 EXISTING WELLS
WATER STORAGE ————— 3 CONCRETE TANKS @ 240,000 gallons EACH

TOTAL STORAGE ————— 720,000 gallons
AVERAGE DAILY TOTAL WATER USE ————— 33,000 gallons
MAXIMUM DAILY USE ————— 66,000 gallons

SEPTIC TANK DESIGN DATA

88 HOMES
1 OFFICE BUILDING
1 HOTEL
1 RESTAURANT
2 MISCELLANEOUS BUILDINGS
SCHOOL
COMMUNITY BUILDING
3 FUTURE SITES

DAILY ESTIMATED SEWAGE FLOW @ 28,900 gallons
SEPTIC TANKS - 3 @ 10,000 gallons EACH

RECORD DRAWINGS

NAME: _____ DATE: 11/11/86

3-20-89	RECORD DRAWING	J.C.

DATE	REVISIONS	INITIALS

U.S. Department of Health, & Human Services
Public Health Service
Indian Health Service

ST. PAUL, ALASKA
AERIAL PHOTO

PUBLIC LAW 86-121 PROJECT
PROJECT NO. AN - 86 - 340

SHEET NO. D-2 OF 2 TOTAL SHEETS

DRAWN BY: JAO / LOWDERMILK
DATE: JULY 86 / 11-86
CHECKED BY: _____
DATE: _____

SANITATION FACILITIES CONSTRUCTION BRANCH
ENVIRONMENTAL HEALTH BRANCH
ALASKA AREA NATIVE HEALTH SERVICE
ANCHORAGE, ALASKA

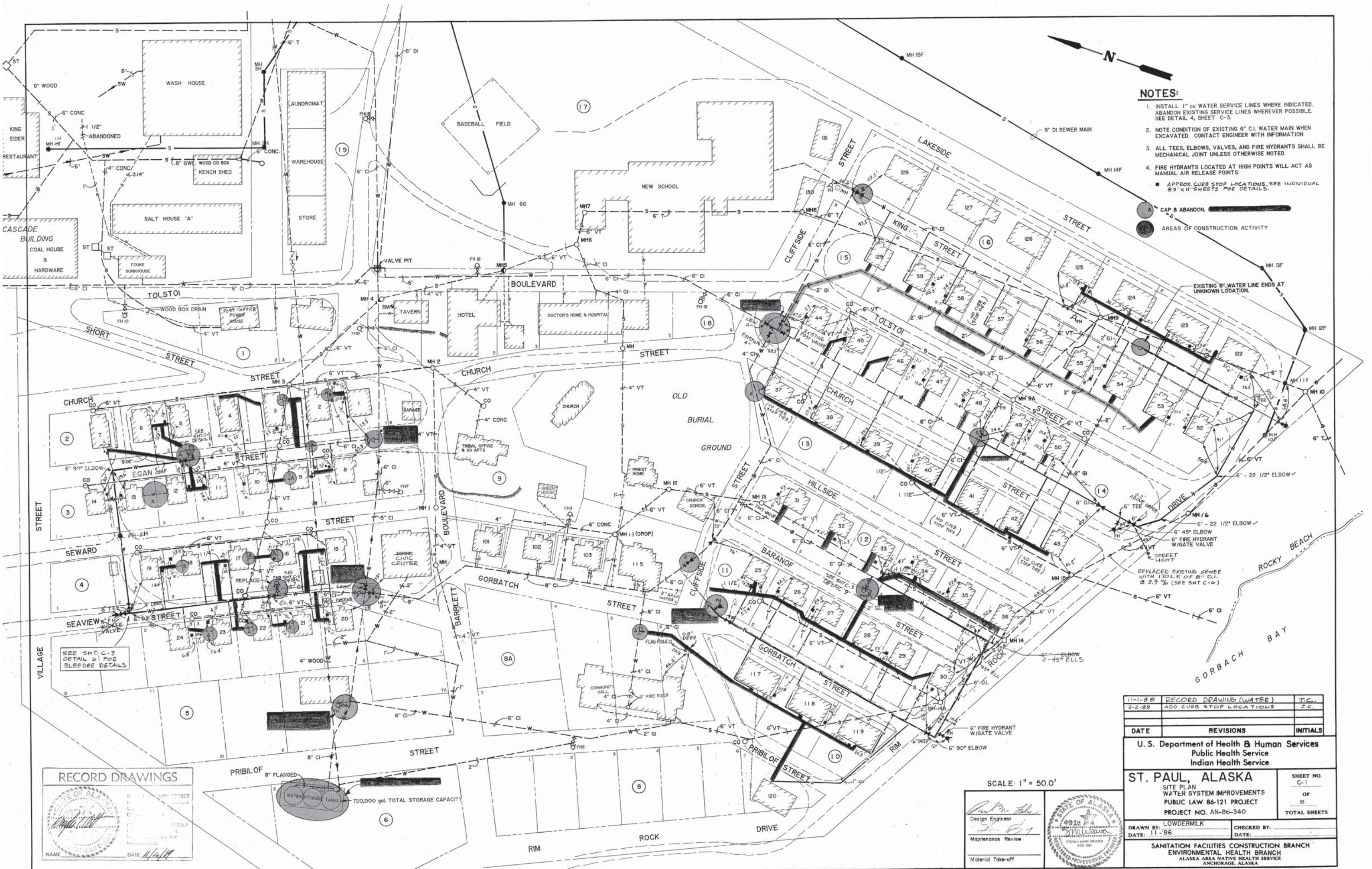
SCALE 1" = 90.0'
DATE OF PHOTO 10-16-82

Design Engineer

Maintenance Review

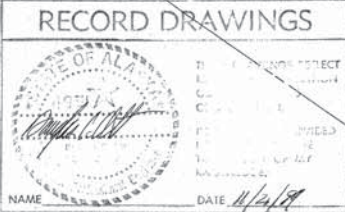
Material Take-off

Prepared By NORTH PACIFIC AERIAL SURVEYS INC.



- NOTES:**
1. INSTALL 1" cu WATER SERVICE LINES WHERE INDICATED. ABANDON EXISTING SERVICE LINES WHEREVER POSSIBLE. SEE DETAIL 4, SHEET C-3.
 2. NOTE CONDITION OF EXISTING 6" C.I. WATER MAIN WHEN EXCAVATED. CONTACT ENGINEER WITH INFORMATION.
 3. ALL TEES, ELBOWS, VALVES, AND FIRE HYDRANTS SHALL BE MECHANICAL JOINT UNLESS OTHERWISE NOTED.
 4. FIRE HYDRANTS LOCATED AT HIGH POINTS WILL ACT AS MANUAL AIR RELEASE POINTS.
- APPROX. CURB STOP LOCATIONS, SEE INDIVIDUAL 8.5" x 11" SHEETS FOR DETAILS.
- CAP & ABANDON
- AREAS OF CONSTRUCTION ACTIVITY

11-1-88	RECORD DRAWING (WATER)	J.C.
2-2-89	ADD CURB STOP LOCATIONS	J.C.
DATE	REVISIONS	INITIALS
U. S. Department of Health & Human Services Public Health Service Indian Health Service		
ST. PAUL, ALASKA		
SITE PLAN WATER SYSTEM IMPROVEMENTS PUBLIC LAW 86-121 PROJECT PROJECT NO. AN-86-340		
DRAWN BY: LOWDERMILK		CHECKED BY:
DATE: 11-86		DATE:
SANITATION FACILITIES CONSTRUCTION BRANCH ENVIRONMENTAL HEALTH BRANCH ALASKA AREA NATIVE HEALTH SERVICE ANCHORAGE, ALASKA		
SHEET NO. C-1		TOTAL SHEETS



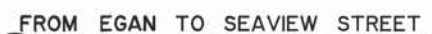
SCALE: 1" = 50.0'

Design Engineer: *[Signature]*

Maintenance Review: *[Signature]*

Material Take-off: *[Signature]*

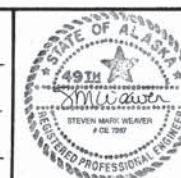
STATE OF ALASKA
REGISTERED PROFESSIONAL ENGINEER
STEVEN MARK WEAVER
00170

CHURCH STREET PROFILE

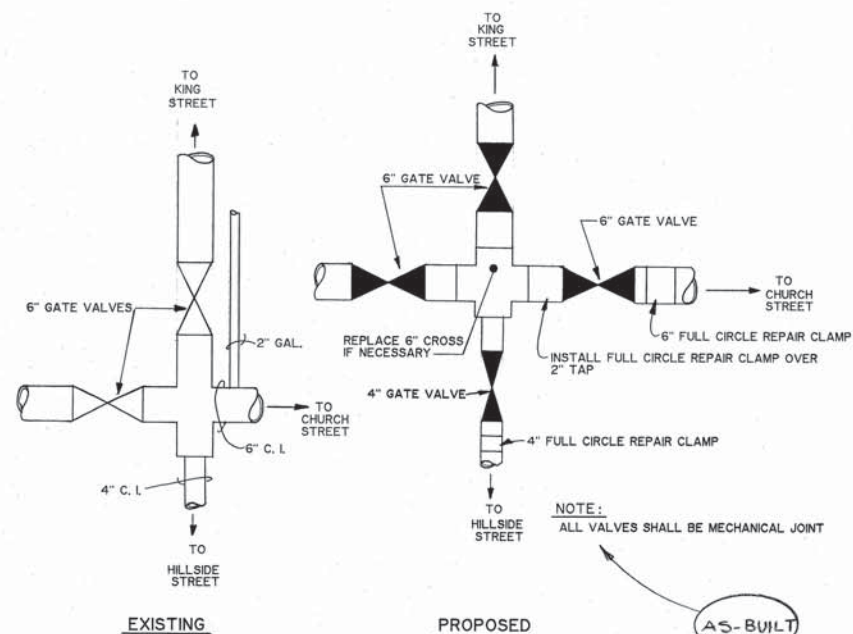
11-1-88	RECORD DRAWING	J.C
DATE	REVISIONS	INITIALS


 Design Engineer

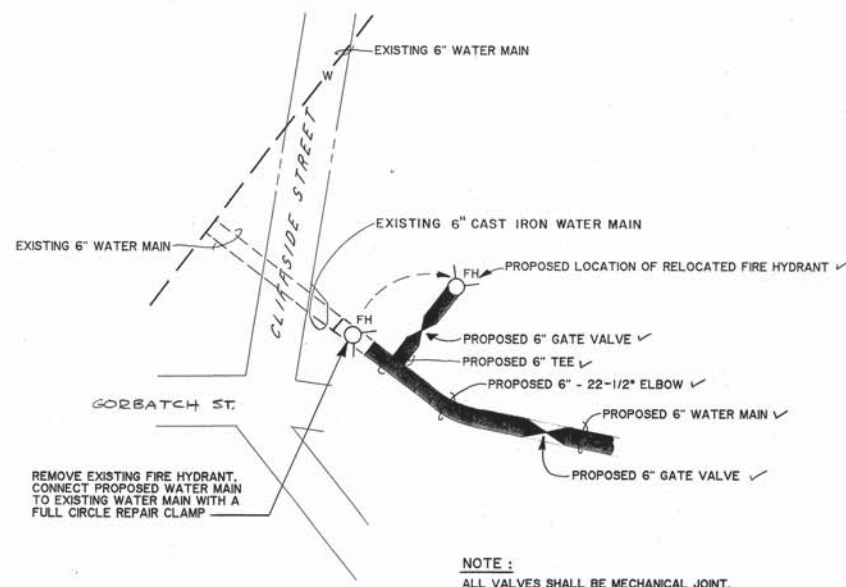
 Maintenance Review
 Material Take-off



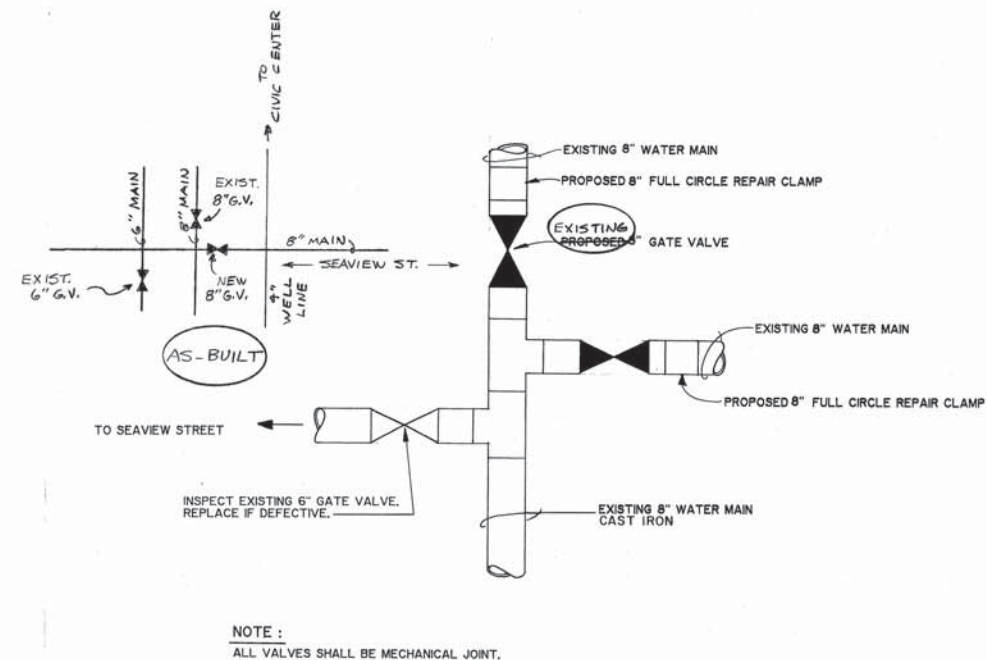
U. S. Department of Health & Human Services Public Health Service Indian Health Service	
ST. PAUL, ALASKA	SHEET NO. C - 2 OF 18 TOTAL SHEETS
WATER MAIN PROFILES PUBLIC LAW 86-121 PROJECT PROJECT NO. AN-86-340	
DRAWN BY: LOWDERMILK DATE: 1 - '86	CHECKED BY: _____ DATE: _____
SANITATION FACILITIES CONSTRUCTION BRANCH ENVIRONMENTAL HEALTH BRANCH ALASKA AREA NATIVE HEALTH SERVICE ANCHORAGE	



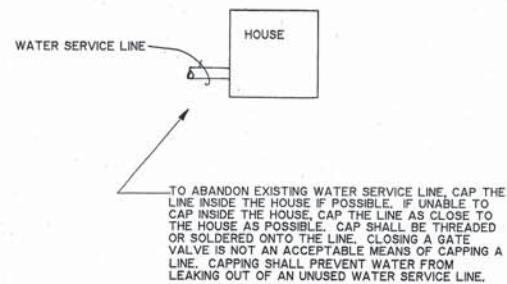
DETAIL 1
NOT TO SCALE



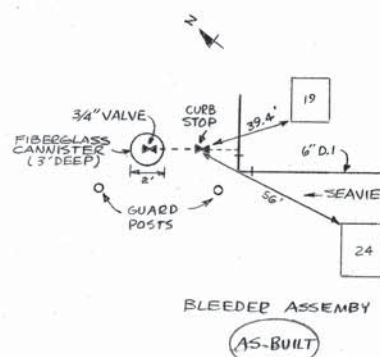
DETAIL 2
NOT TO SCALE



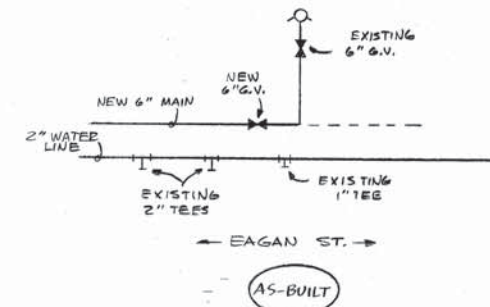
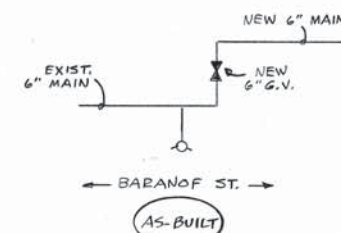
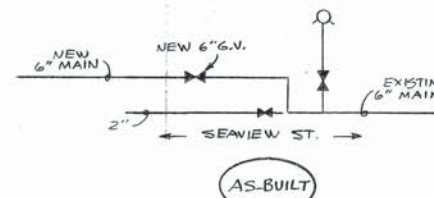
DETAIL 3
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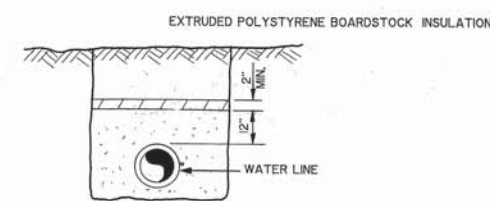
DETAIL 4
NOT TO SCALE



DETAIL 5
NOT TO SCALE



NOTE:
ALL DETAILS ARE REFERENCED FROM SHEET # C-1.
ALL HOUSE PLUMBING WILL BE PRESSURE TESTED
BY THE CITY OF ST. PAUL.



INSULATION DETAIL
REF. DETAIL 5 NOTE 2

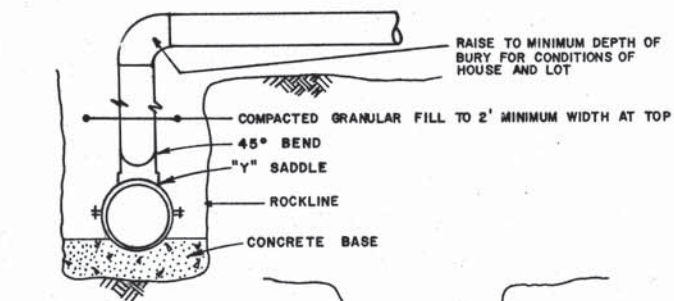


- PROPOSED WORK:**
1. REPLACE ALL THE EXISTING WATER STORAGE TANKS GATE VALVES WITH PROPOSED GATE VALVES AS FOLLOWS:
 - 6" SUPPLY LINE 3 EA. - 6" FLANGED GATE VALVES
 - 8" DISTRIBUTION LINE 3 EA. - 8" FLANGED GATE VALVES
 - 6" DRAIN LINE 3 EA. - 6" MECHANICAL JOINT VALVES
 2. REMOVE EXISTING WOODEN BOXES AND INSTALL C.I. VALVE BOXES WITH LIDS. PROPOSED VALVE BOXES SHALL EXTEND APPROXIMATELY ONE FOOT ABOVE EXISTING GROUND. ANY WATER LINE WHICH HAS LESS THAN 42" OF SOIL COVER SHALL BE INSULATED WITH A MINIMUM OF 2" OF EXTRUDED POLYSTYRENE BOARDSTOCK INSULATION.

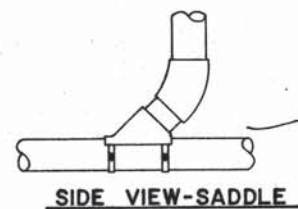
Design Engineer
Maintenance Review
Material Take-off



10-28-88	RECORD DRAWING	J.C.
DATE	REVISIONS	INITIALS
U. S. Department of Health & Human Services Public Health Service Indian Health Service		
ST. PAUL, ALASKA		
WATER SYSTEM DETAILS PUBLIC LAW 86-121 PROJECT PROJECT NO. AN-86-340		
DRAWN BY: LOWDERMILK	CHECKED BY:	SHEET NO. C-3
DATE: 1-87	DATE:	OF 18
SANITATION FACILITIES CONSTRUCTION BRANCH ENVIRONMENTAL HEALTH BRANCH ALASKA AREA NATIVE HEALTH SERVICE ANCHORAGE, ALASKA		
TOTAL SHEETS		



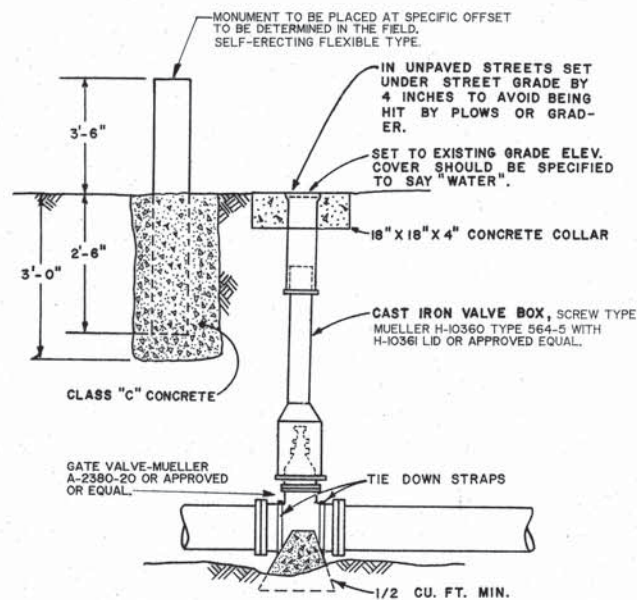
ROCK DITCH SECTION



EARTH DITCH SECTION

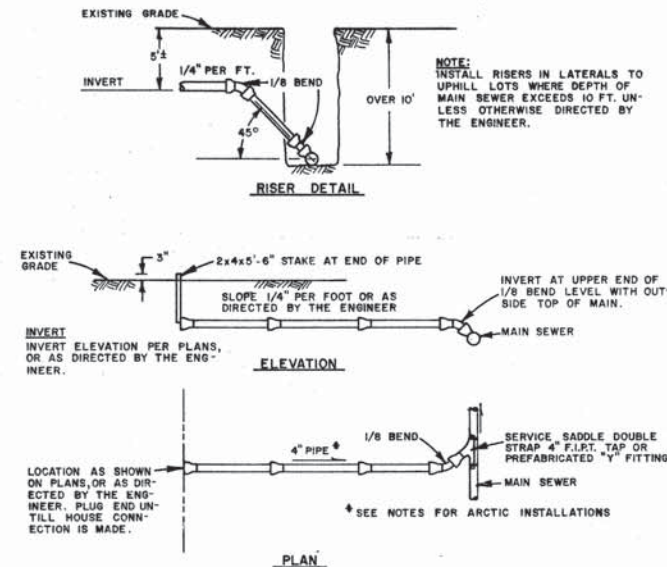
NOTE:
LOCATION SHALL BE REFERENCED TO THREE PERMANENT ABOVE-GROUND STRUCTURES

CONVENTIONAL DROP SEWER SERVICE CONNECTION
NOT TO SCALE



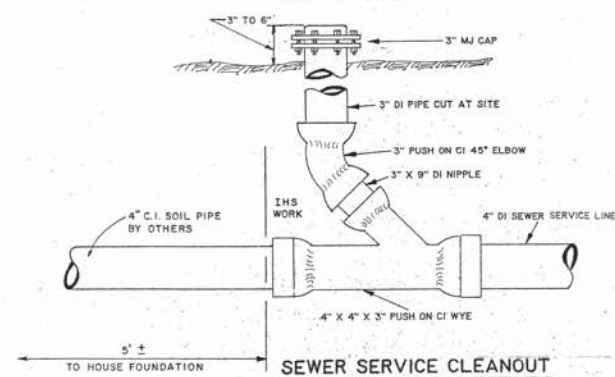
CONVENTIONAL VALVE CONNECTION AND MARKER
NOT TO SCALE

NOTE:
LOCATION SHALL BE REFERENCED TO THREE PERMANENT ABOVE GROUND STRUCTURES.

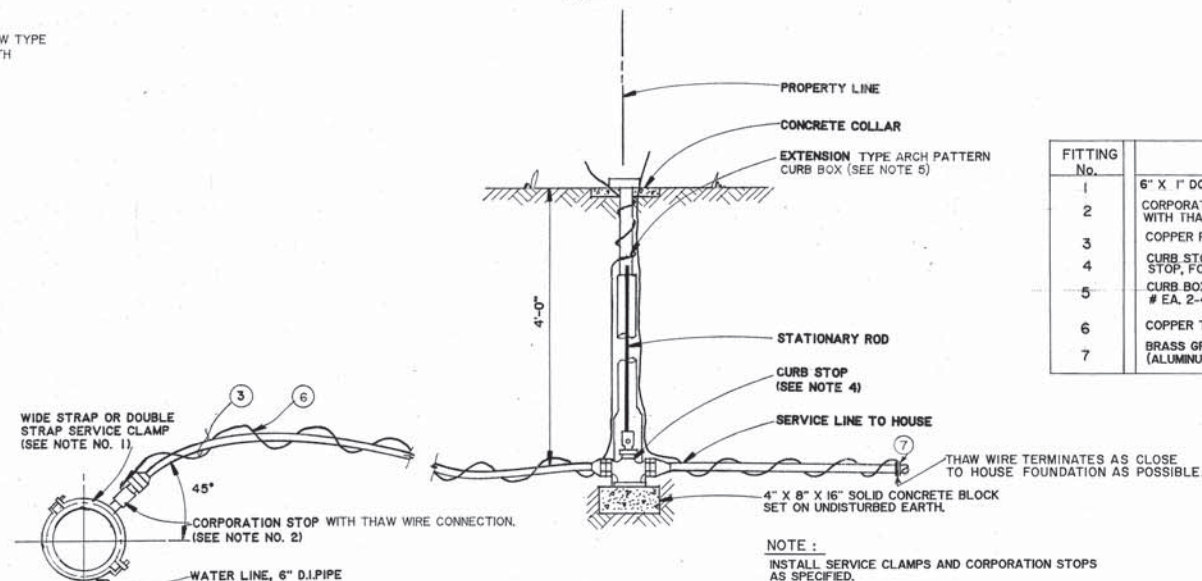


NOTES:
1. MINIMUM COVER ON SEWER SERVICE LINE AT HOUSE WILL BE 2' BACKFILL.
2. FOR ARCTIC INSTALLATIONS ALL SERVICE LINE PIPE TO BE INSULATED ARCTIC CONDUIT WITH ALL JOINTS OR FITTINGS JOINED WITH DONNET OR FIELD FOAM.
3. ALL SERVICE SADDLE LOCATIONS SHALL BE REFERENCED IN FIELD WITH THREE EACH SWING TIES.
4. ALL SERVICE SADDLES SHALL BE BACKFILLED WITH GRANULAR MATERIAL AND COMPACTED.

LATERAL SEWER DETAILS
NOT TO SCALE

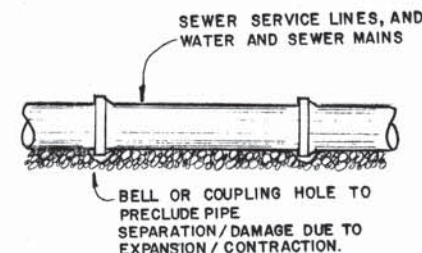


SEWER SERVICE CLEANOUT
NTS

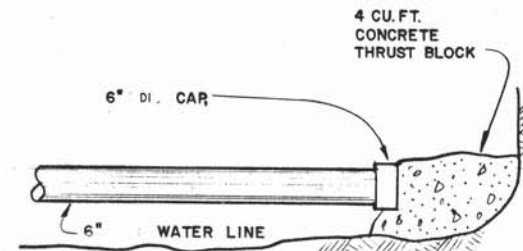


NOTE:
INSTALL SERVICE CLAMPS AND CORPORATION STOPS AS SPECIFIED.

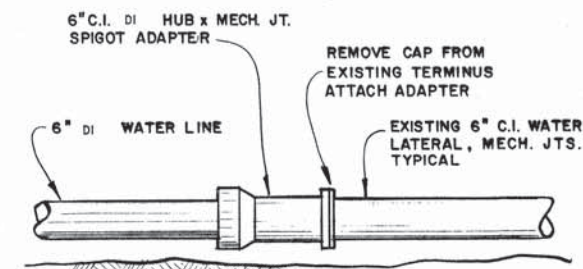
WATER SERVICE CONNECTION



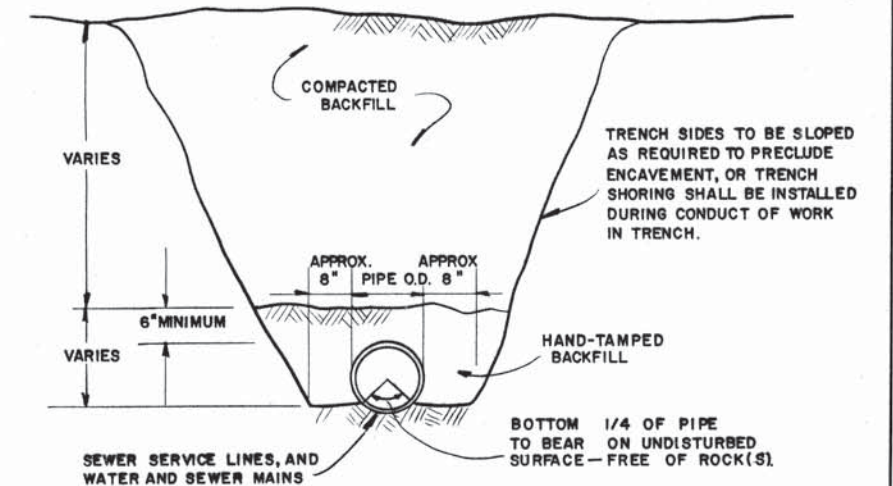
JOINT BEDDING



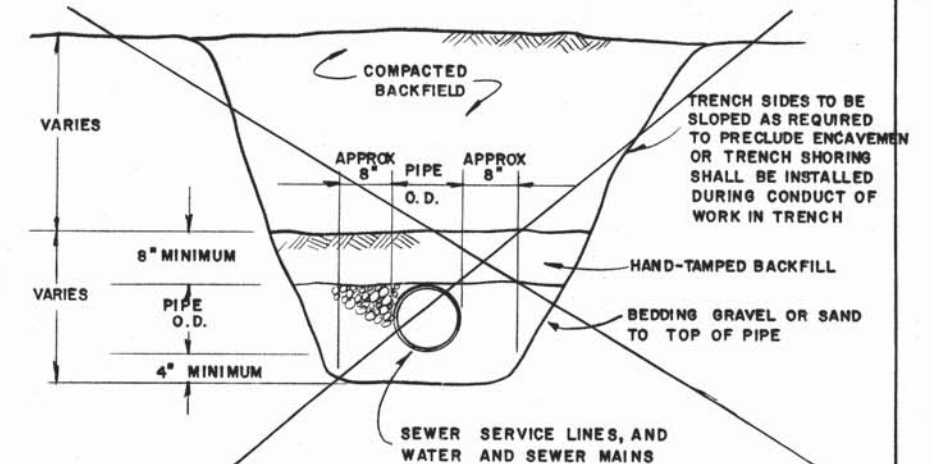
TYPICAL END-CAP INSTALLATION
NOT TO SCALE



TYPICAL HOOK-UP TO EXISTING WATER SYSTEM LATERAL
NOT TO SCALE

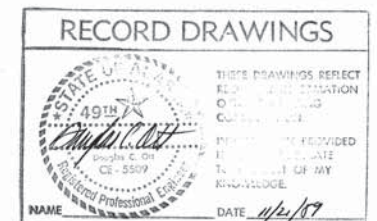


CONDITIONS REQUIRING NO BEDDING



CONDITIONS REQUIRING BEDDING MATERIAL
WATER AND SEWER BEDDING DETAILS

FITTING No.	DESCRIPTION
1	6" X 1" DOUBLE STRAP SADDLE, FORD # F202-760 X IP4
2	CORPORATION STOP, 1" MIPT X 1" FLARE, FORD # F700, WITH THAWING NUT GROUNDING WIRE ATTACHMENT.
3	COPPER PIPE, 1" TYPE "K".
4	CURB STOP, 1" FLARE X 1" FLARE, COPPER BALL VALVE CURB STOP, FORD # B22-444.
5	CURB BOX, 1 1/4" UPPER SECTION, WITHOUT ROD, MODEL # EA 2-40-50, 4" EXTENSION.
6	COPPER THAW WIRE, 2 AWG, RUBBER COATED.
7	BRASS GROUNDING CLAMP FOR 1" COPPER AND # 2 WIRE (ALUMINUM GROUNDING CLAMPS ARE NOT ACCEPTABLE).



3-24-89	RECORD DRAWING	J.C.
DATE	REVISIONS	INITIALS

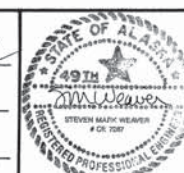
U. S. Department of Health & Human Services
Public Health Service
Indian Health Service

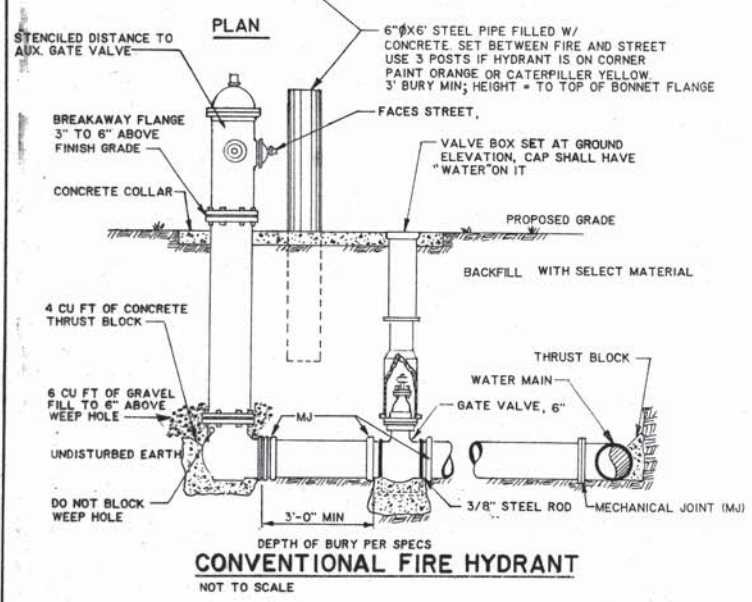
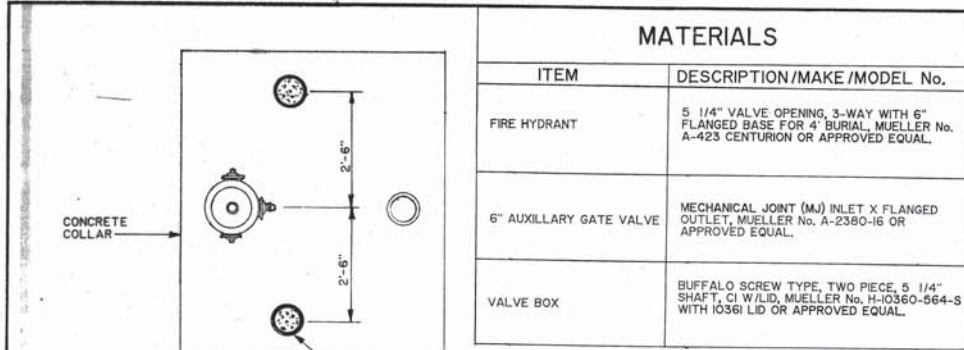
ST. PAUL, ALASKA
WATER SYSTEM
DETAILS
PUBLIC LAW 86-121 PROJECT
PROJECT NO. AN-86-340

DRAWN BY: LOWDERMILK	CHECKED BY:
DATE: 2-87	DATE:

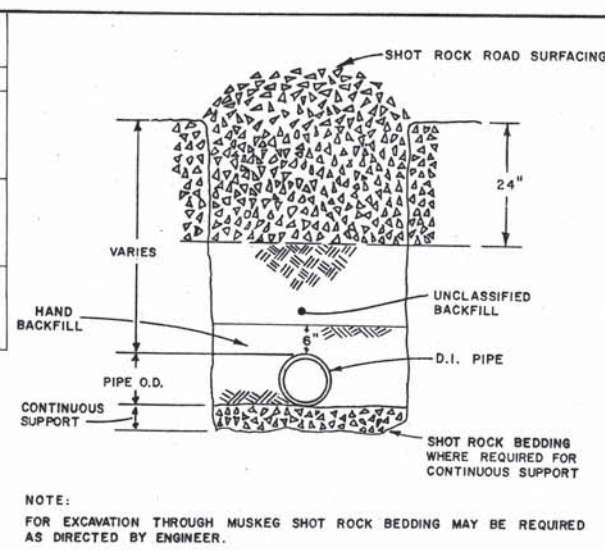
SANITATION FACILITIES CONSTRUCTION BRANCH
ENVIRONMENTAL HEALTH BRANCH
ALASKA AREA NATIVE HEALTH SERVICE
ANCHORAGE, ALASKA

Design Engineer
Maintenance Review
Material Take-off

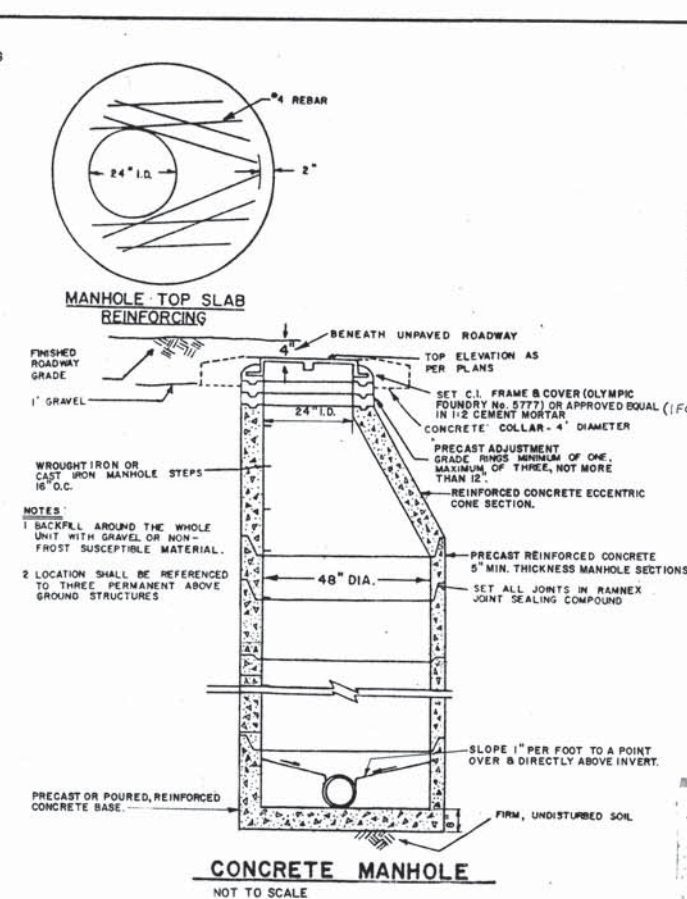




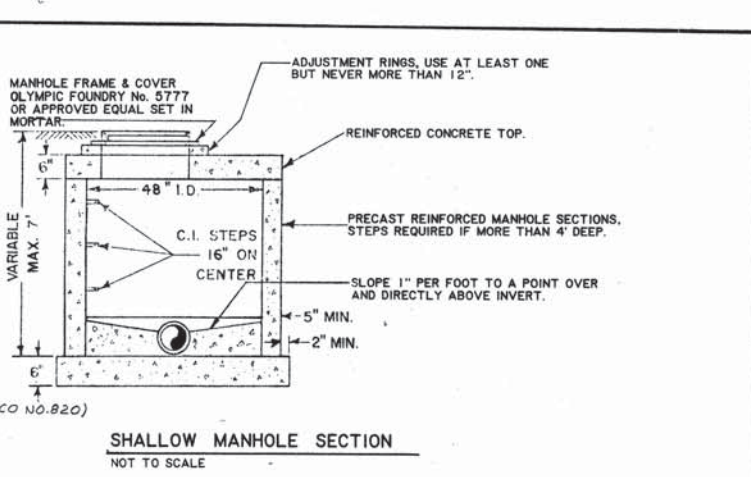
MATERIALS	
ITEM	DESCRIPTION/MAKE/MODEL No.
FIRE HYDRANT	5 1/4" VALVE OPENING, 3-WAY WITH 6" FLANGED BASE FOR 4" BURIAL, MUELLER No. A-423 CENTURION OR APPROVED EQUAL.
6" AUXILIARY GATE VALVE	MECHANICAL JOINT (MJ) INLET X FLANGED OUTLET, MUELLER No. A-2350-16 OR APPROVED EQUAL.
VALVE BOX	BUFFALO SCREW TYPE, TWO PIECE, 5 1/4" SHAFT, CI W/LID, MUELLER No. H-10360-564-S WITH 10361 LID OR APPROVED EQUAL.



CONVENTIONAL TRENCH SECTION THROUGH ROCK EXCAVATION FOR DUCTILE IRON PIPE
NOT TO SCALE



CONCRETE MANHOLE
NOT TO SCALE



SHALLOW MANHOLE SECTION
NOT TO SCALE

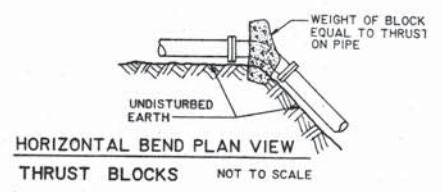
THRUST BLOCK MINIMUM SIZE TABLE

FOR BENDS GREATER THAN 45°, TEE BRANCHES & CROSSES				
WATER PRESSURE IN PIPE (p.s.i.)				
PIPE DIAM. (in.)	BEARING AREA (sq. ft.)	CONCRETE VOLUME (cu. ft.)	BEARING AREA (sq. ft.)	CONCRETE VOLUME (cu. ft.)
2	0.5	0.5	0.8	1.0
4	0.8	1.0	1.6	3.1
6	1.0	1.3	1.9	4.0
8	1.1	1.5	3.2	7.0
10	1.7	3.2	4.9	10.0

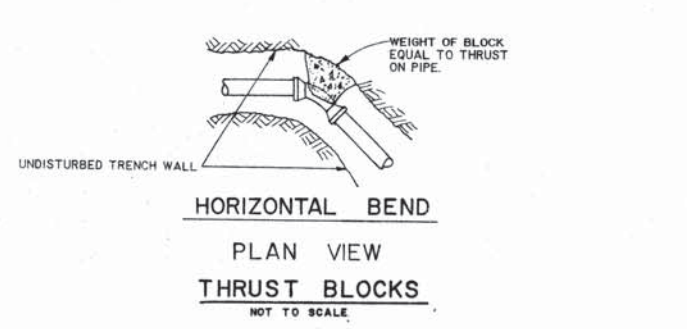
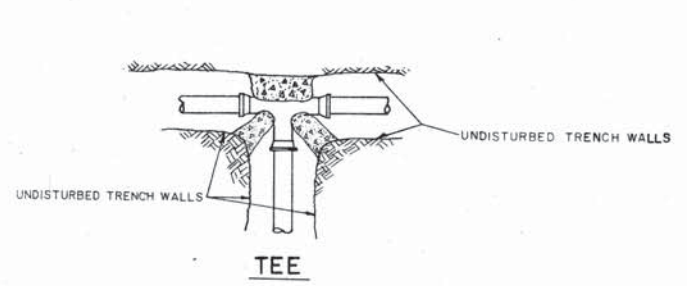
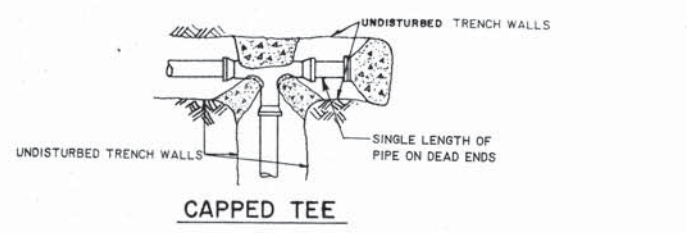
FOR BENDS 45° OR LESS				
PIPE DIAM. (in.)	BEARING AREA (sq. ft.)	CONCRETE VOLUME (cu. ft.)	BEARING AREA (sq. ft.)	CONCRETE VOLUME (cu. ft.)
2	0.5	0.5	0.5	0.5
4	0.5	0.5	0.9	1.1
6	0.6	0.8	1.2	2.0
8	0.8	1.0	1.8	3.6
10	1.0	1.3	2.7	5.8

- NOTES:
- THRUST BLOCKS ARE TO BE POURED IN PLACE BETWEEN THE FITTING AND UNDISTURBED TRENCH WALL.
 - CONCRETE SHALL BE KEPT BEHIND BELL OF FITTING SO AS NOT TO OBSTRUCT THE JOINT.
 - THRUST BLOCKS ARE REQUIRED WHENEVER PIPE-LINE CHANGES DIRECTION, CHANGES SIZE, DEAD ENDS, OR DEVELOPS THRUST AT VALVES.
 - MATERIAL BEHIND THE THRUST BLOCKS, DEEMED INADEQUATE BY THE ENGINEER, SHALL BE REMOVED AND REPLACED BY A BALLAST MATERIAL, THE EXTENT AND QUALITY OF REPLACEMENT MATERIAL TO BE DETERMINED BY THE ENGINEER.
 - IN IMPERVIOUS SOILS, A HOLE SHALL BE DUG BENEATH THE HYDRANT THRUST BLOCK TO A MINIMUM VOLUME OF 7 CUBIC FEET, THE HOLE SHALL BE BACKFILLED AND COMPACTED WITH A POROUS MATERIAL ACCEPTABLE TO THE ENGINEER.

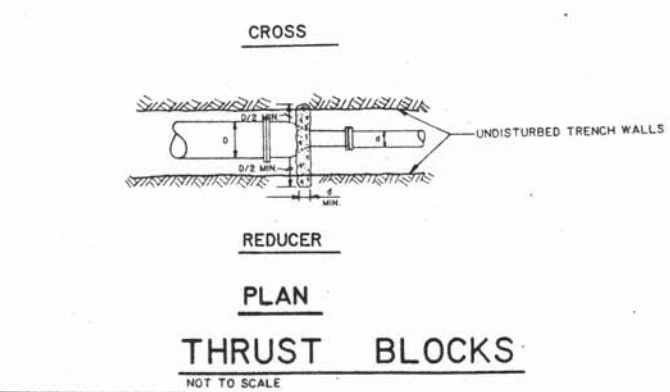
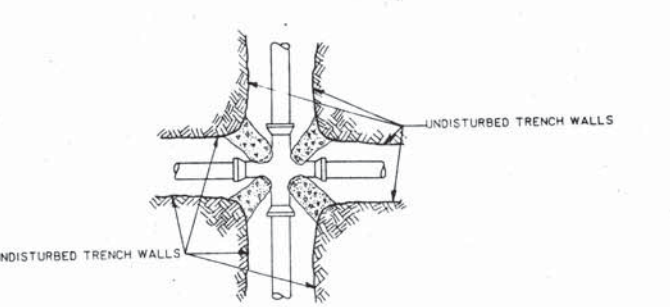
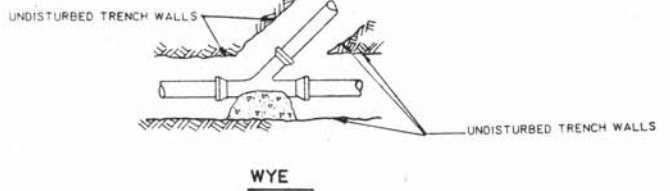
PIPE SIZE	THRUST (lb.)
4"	35
6"	72
8"	122
10"	197



HORIZONTAL BEND PLAN VIEW
THRUST BLOCKS NOT TO SCALE



HORIZONTAL BEND
THRUST BLOCKS NOT TO SCALE



REDUCER
THRUST BLOCKS NOT TO SCALE

RECORD DRAWINGS

THIS DRAWING IS THE PROPERTY OF THE STATE OF ALASKA. IT IS TO BE KEPT IN THE OFFICE OF THE ENGINEER IN CHARGE OF THE PROJECT. IT IS TO BE RETURNED TO THE OFFICE OF THE ENGINEER IN CHARGE OF THE PROJECT UPON COMPLETION OF THE PROJECT.

NAME: *[Signature]* DATE: 1/12/97

DESIGN ENGINEER

[Signature]

MAINTENANCE REVIEW

MATERIAL TAKE-OFF

11-15-88	RECORD DRAWING	J. C.
DATE	REVISIONS	INITIALS
U. S. Department of Health & Human Services Public Health Service Indian Health Service		
ST. PAUL, ALASKA		
WATER & SEWER STANDARD DETAILS PUBLIC LAW 86-121 PROJECT PROJECT NO. AN-86-340		
SHEET NO. C-17		
OF 18		
TOTAL SHEETS		
DRAWN BY: LOWDERMILK		
DATE: 2-97		
CHECKED BY:		
DATE:		
SANITATION FACILITIES CONSTRUCTION BRANCH ENVIRONMENTAL HEALTH BRANCH ALASKA AREA NATIVE HEALTH SERVICE ANCHORAGE, ALASKA		