

5-27-81

No Contract # 60150  
Refer to Contract #

Design for 88  
~~AS-4020~~ award.

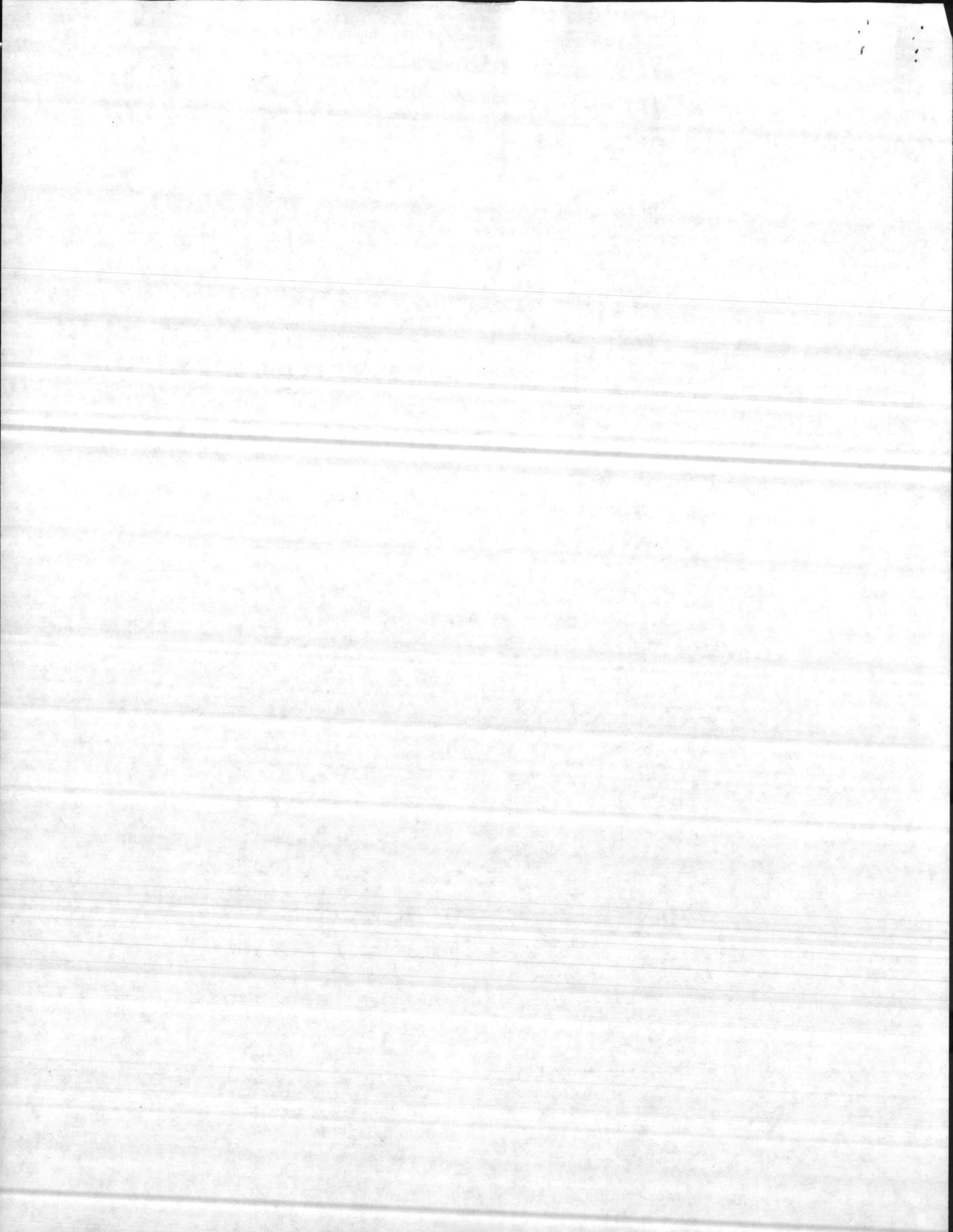
AS-4020 vacant

AS-4025

GROUNDWATER INFILTRATION STUDY  
FOR  
AS 4000 AREA

PREPARED BY  
HOBBS, UPCHURCH & ASSOCIATES, P. A.  
CONSULTING ENGINEERS  
290 S. W. BROAD STREET  
POST OFFICE BOX 1735  
SOUTHERN PINES, NORTH CAROLINA

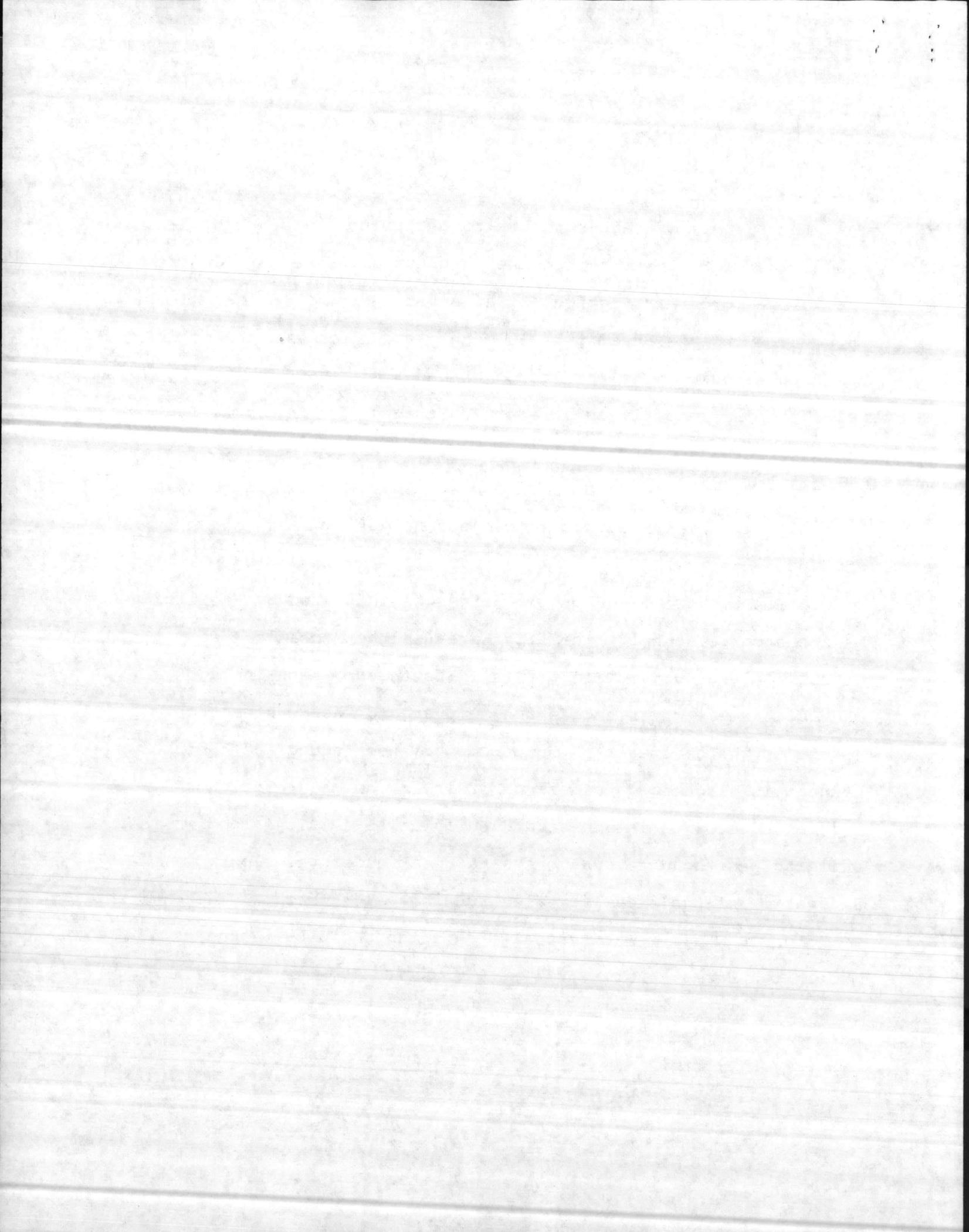
AUGUST 1, 1986



## INTRODUCTION:

The purpose of this study is to determine the cause of groundwater infiltration into the structures in the AS-4000 area of the Marine Corps Air Station at New River, North Carolina. These structures include steam pits in mechanical rooms and a room in Building AS-4020. The results of groundwater level monitoring wells are presented in this report. Based on these results, visual observation of the sites, and conversations with the maintenance personnel, corrective measures are recommended. A cost estimate is included to project necessary funding for this project.

There are two major problem areas as indicated by Facilities Maintenance personnel. The first area is the Mechanical Room pit at Building AS-4035. This pit is 10 feet deep which includes a one foot sump. Water enters the sump around the construction joints in the concrete. A sump pump has been added and the seepage is discharged to a floor drain in the Mechanical Room. The second area is in and around Building AS-4020. A room in this building was thought to have a water leak under the floor. Excavation of the floor revealed running water which was determined to be groundwater. Water is also entering the pits in the Mechanical Room.



GROUNDWATER LEVEL MONITORING WELLS:

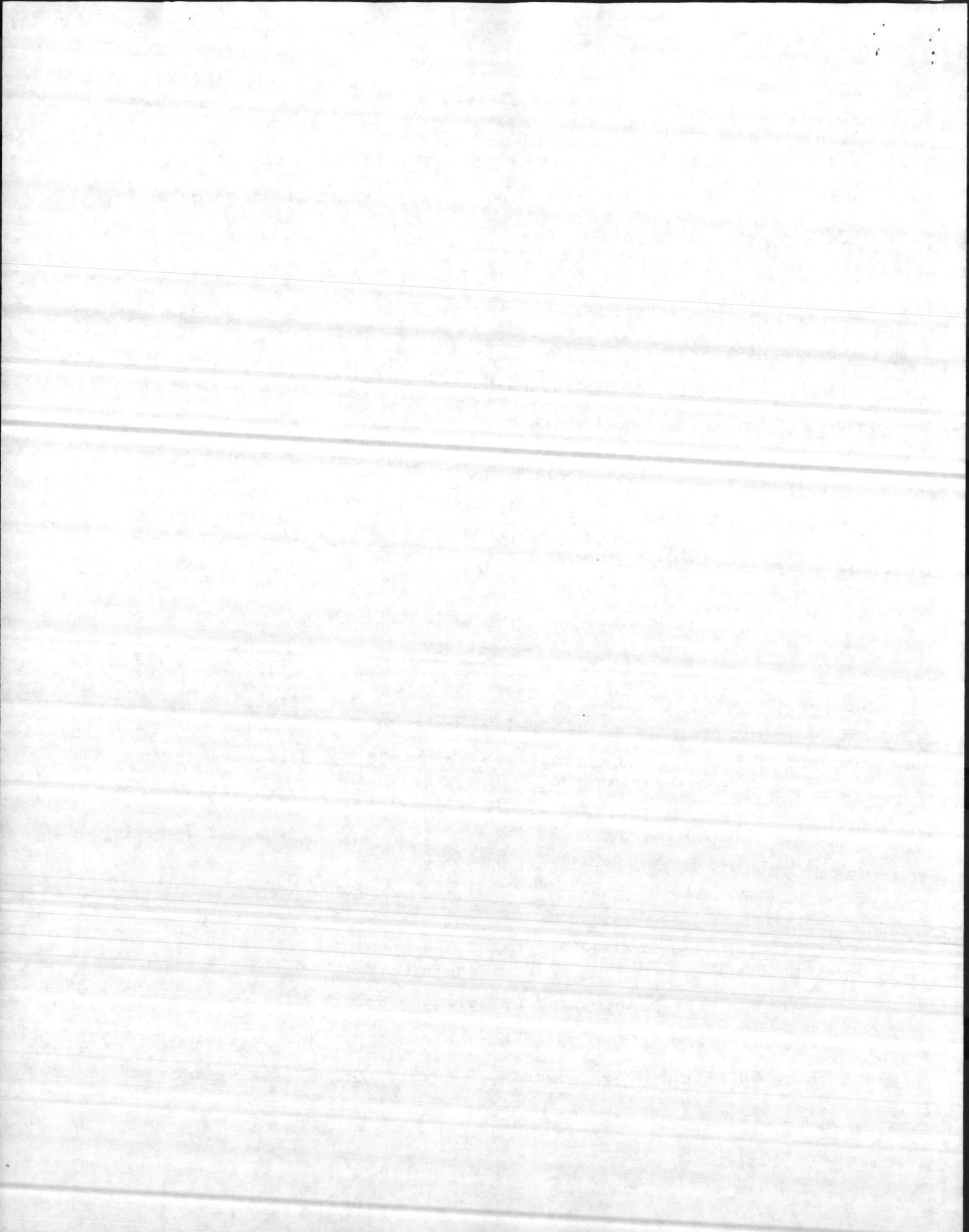
To determine the extent that ground water was contributing to this problem, six monitoring wells were installed at various locations around the site. These are shown on Drawing No. 1 which also indicates the general topography of the site and location of the structures, parking areas and roads. The data from the groundwater level monitoring wells is probably not indicative of average conditions because of the sustained drought occurring at this time. There has been only 8.5 inches of recorded rainfall for the entire year at this date. The normal rainfall for this time of year is 28 inches. The elevations for the ground water and wells is presented in Table 1.

TABLE 1  
GROUNDWATER LEVEL MONITORING WELL DATA

Well #	1	2	3	4	5	6
Grade *	27	27	22	24	25.5	24
Bottom of Well	18	23	15	17	19.5	18
Groundwater Level	18	25	16	17.5	19.5+	18.5
Depth of Water	1"	23"	10"	3"	2"	7"

\*Elevations taken from construction drawings.  
Elevations are given to the nearest 0.5 foot.

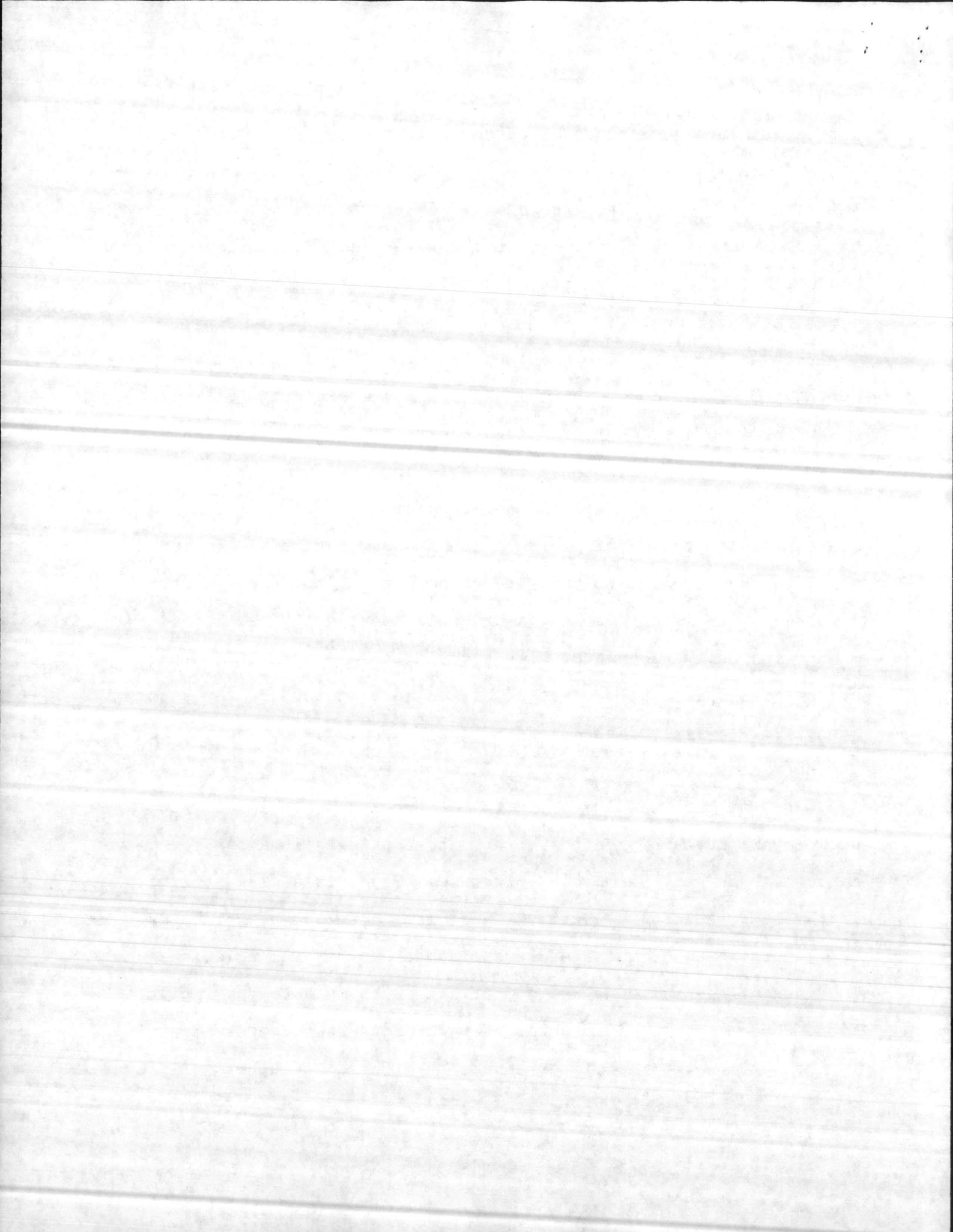
The wells were installed by boring a 6-inch hole and placing a length of 4-inch PVC pipe in it. The bottom 18-inches of pipe was slotted to allow groundwater to enter. Gravel was placed



between the pipe and the side of the hole to the height of the slots. The annular space was then filled with excavated material. The top of the pipe was extended 6 - 12 inches above grade and capped. Water levels were measured one week after installation. The depth of the well was determined by soil conditions at the time of the borings.

Elevations are approximations from topographic maps developed during the design of the buildings. With the exception of Well No. 2, the water levels are approximately the same. Well No. 2 is notably different, with the water level only two feet below grade. The water line was checked and no leak was found. Steam lines are constantly monitored for pressure and no leak has been detected in the line running next to the site. The condensate drip leg from the steam pit discharges into a dry well located 10 feet from the monitoring well. The water elevation in the dry well is the same as the monitoring well. Because of the soil structure, the water cannot flow away as fast as it is being supplied, causing the high ground water level.

The soil borings indicated that there are predominantly two soil layers over this entire site. The top layer is a sand or clayey sand which is very permeable. The lower layer is a clay soil with little sand. There is usually a definite interface between these two layers. The groundwater levels appear to be well below the footings of the building and do not attribute much to the infiltration problem. The major source of water appears to be storm water. ~~As the storm water percolates through the permeable upper soil layer,~~



it is soon stopped by the less permeable clay layer. The storm water then travels horizontally along the sand/clay interface where it runs under the buildings and into mechanical pits.

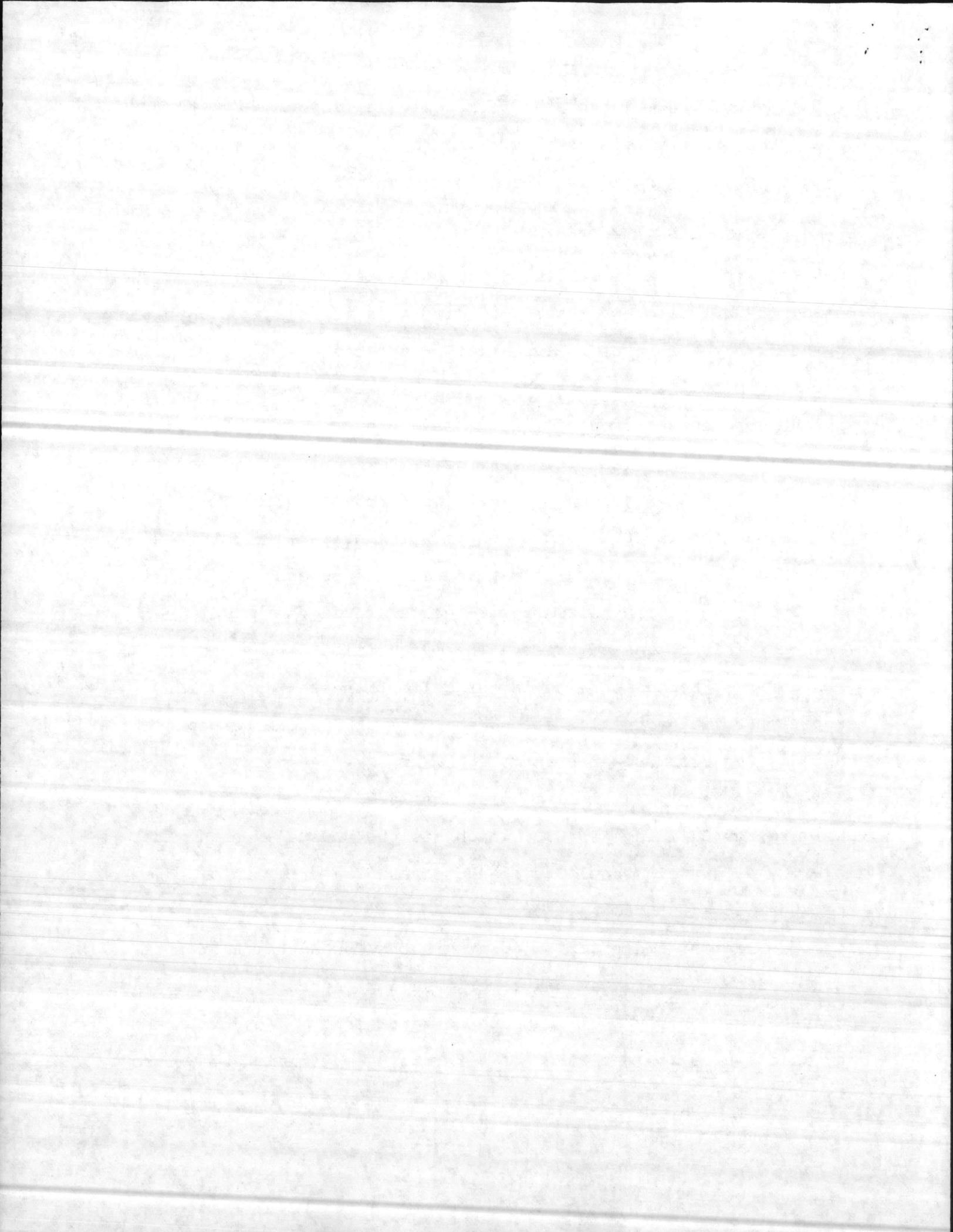
RECOMMENDATIONS:

The storm water should be intercepted and piped away from the buildings. Drawing No. 2 shows a network of pipes and catch basins to intercept this water. Perforated pipes located in gravel-filled ditches can be located just above the clay layer and intercept this water. Chronic wet areas in the grassed areas could also be drained with perforated pipe and catch basins. The drawing shows the piping around Buildings AS-4020 and AS-4025 and the Mechanical Buildings for AS-4030 and AS-4035. No problems were indicated for the other buildings, but similar drains may be used, if necessary.

The drain pipe is sized for 6-inches around the building and 12-inches in the grassed areas. The larger pipe is used in the grassed areas because of the larger collection area and shallow slopes. Preliminary calculations show the drains can be piped into the existing storm sewer system.

The drain pipe will also allow the water around the Mechanical Building for Building AS-4030, which has the unusually high water level. The drywell should be abandoned and the drip leg piped into the storm sewer or drain lines.

The leaking construction joints in the Mechanical Room pits should be caulked with an elastomeric sealant/adhesive. These joints have probably opened up due to settlement. The joints and any cracks need to be cleaned of all foreign materials and ground

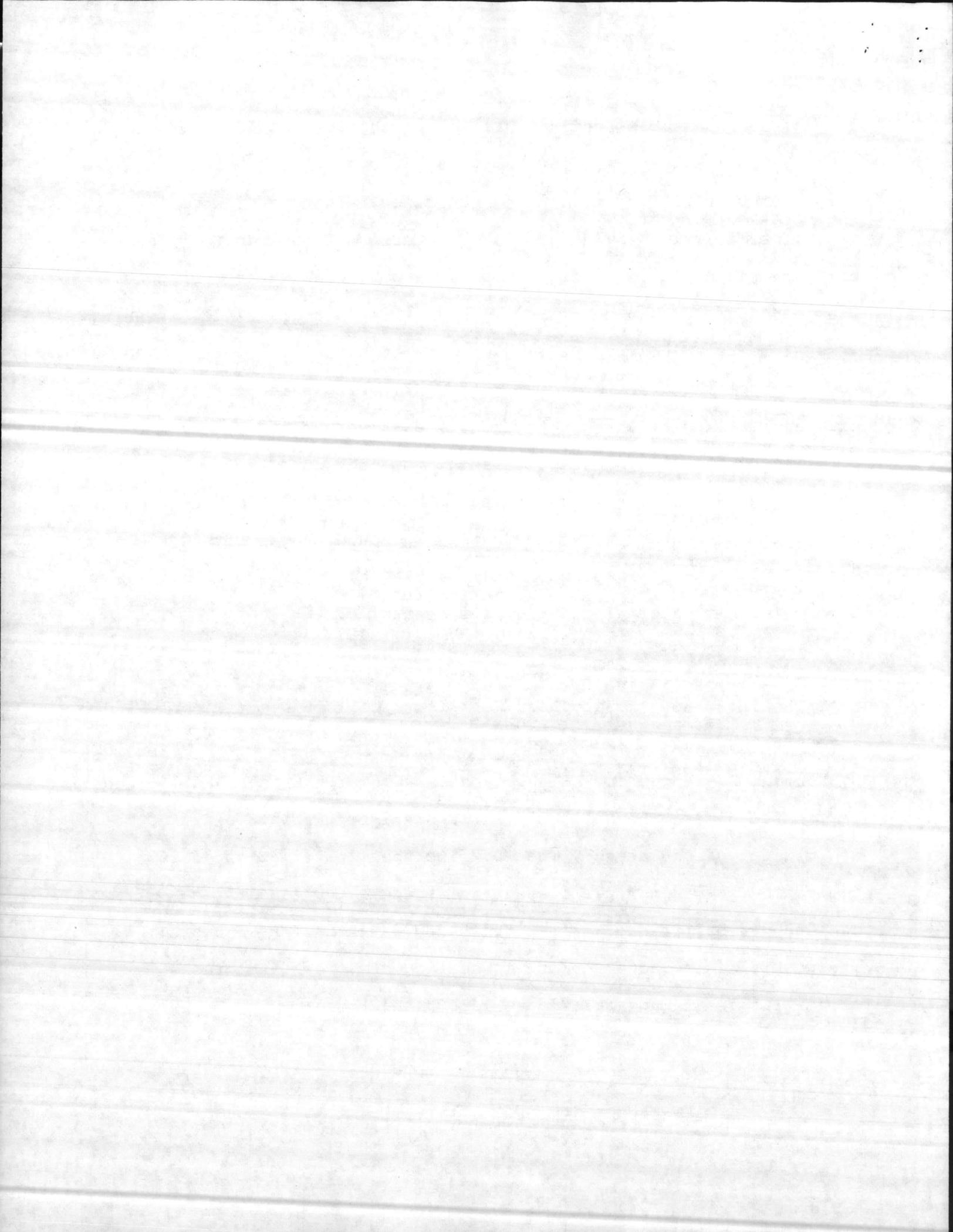


to provide a suitable bonding surface. The joint should be primed with a pigmented high solids, epoxy resin to provide a suitable and waterproof coating for the joint filler. The use of a pigmented primer will provide an easy indication of good and complete coverage which is essential to provide a permanent waterproof bond. The joint should then be filled with an elastic sealant/adhesive. A moisture-cured polyurethane-based elastic sealant will allow the two sides of the crack or joint to move with expansion and contraction and still seal the water out of the structure.

The surface of the concrete should be free of surface water but can be saturated. This may require the dewatering of the area around the pits. The area immediately surrounding the pits was probably filled with a select material. A well point could be placed in this material and the pits dewatered.

#### SCOPE OF WORK:

The intent of the proposed work is to collect storm water which enters the ground in and around Buildings AS-4020 and AS-4025 and the Mechanical Buildings for AS-4030 and AS-4035 with 6-inch and 12-inch perforated pipe. The collected water shall be piped to existing storm water catch basins. The work includes installation of 2635 linear feet of 6-inch perforated drain pipe, 1900 linear feet of 12-inch perforated drain pipe, and 5-new catch basins with gratings. The work also includes repair and sealing of joints and cracks in steam pits totalling approximately 500 linear feet.



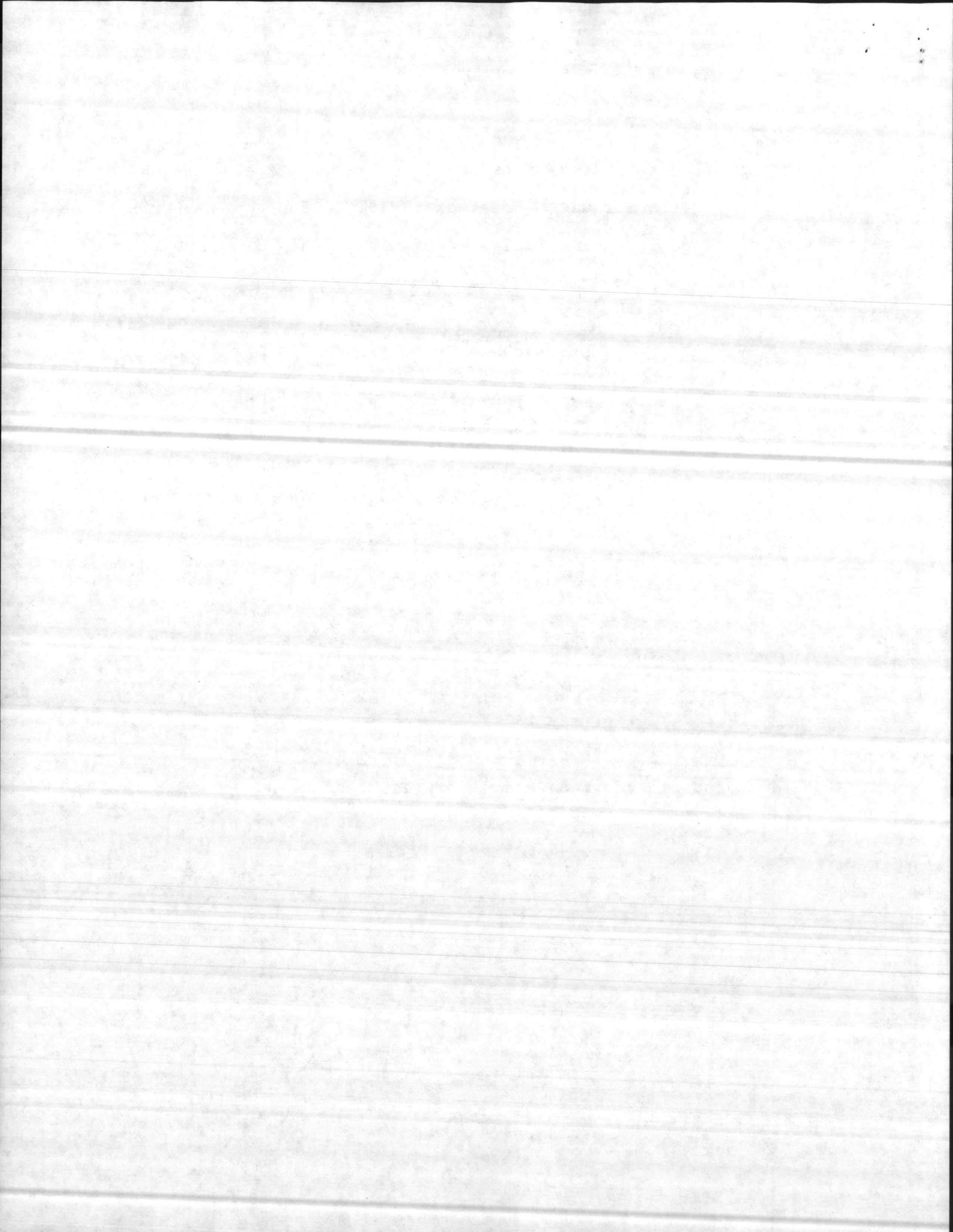
COST ESTIMATE:

The proposed recommendations would cost approximately \$65,000.00 to implement. This includes a cost of \$9,767.00 for repairing the cracks and joints in the mechanical room pits. This is based on an estimate of 100 L.F. per mechanical room pit with five pits to be serviced. The price per linear foot of repair is estimated to be \$10.18 and a cost of \$4,676.00 for well pointing, if necessary.

The estimated cost for the drainage system is broken down by building as shown below.

<u>Building</u>	<u>Estimated Construction Cost</u>
AS 4030	\$ 3,759.00
AS 4035	2,258.00
AS 4020	23,109.00
AS 4025	29,833.00
TOTAL - Drainage System	\$ 58,959.00
Contingency	6,041.00
TOTAL	\$ 65,000.00

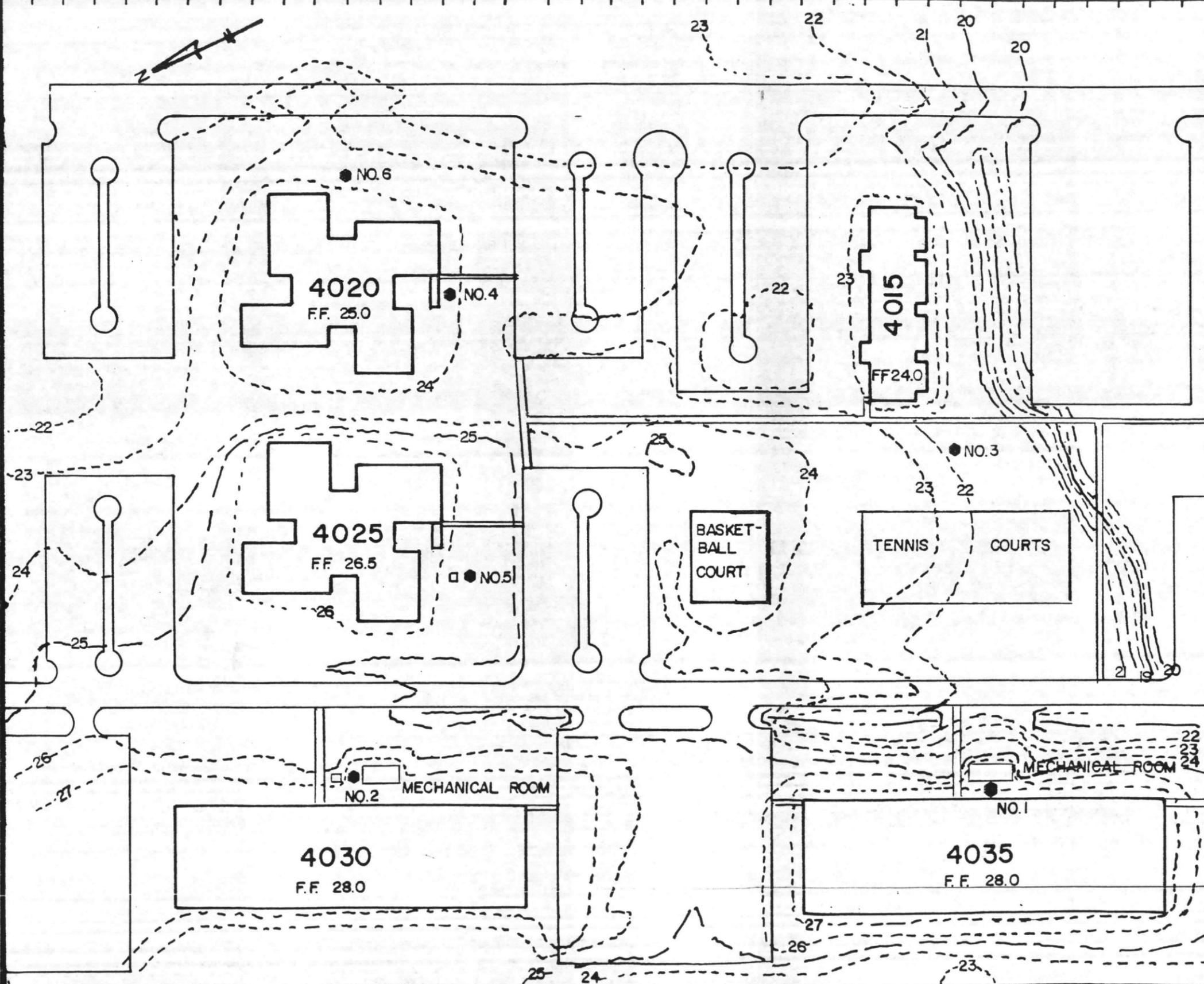
A detailed breakdown of costs is presented at the end of this report.



RAILROAD

NOTE: CONTOURS COMPILED FROM CONSTRUCTION DRAWINGS AND NOT FROM ACTUAL SURVEY.

FF. = FIRST FLOOR ELEVATION  
● = MONITORING WELL LOCATION



CAMP Le JEUNE , NORTH CAROLINA

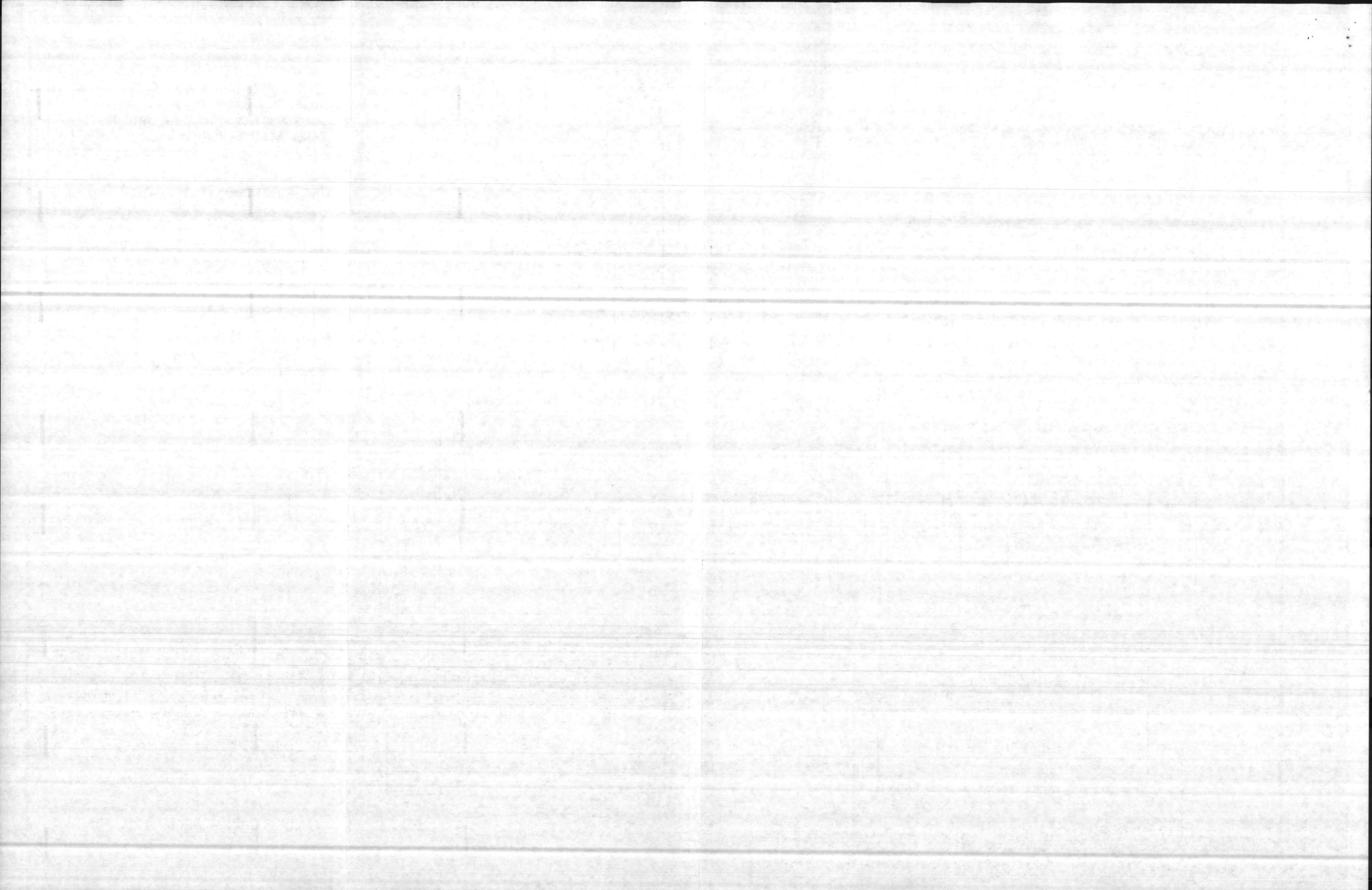
INFILTRATION ANALYSIS

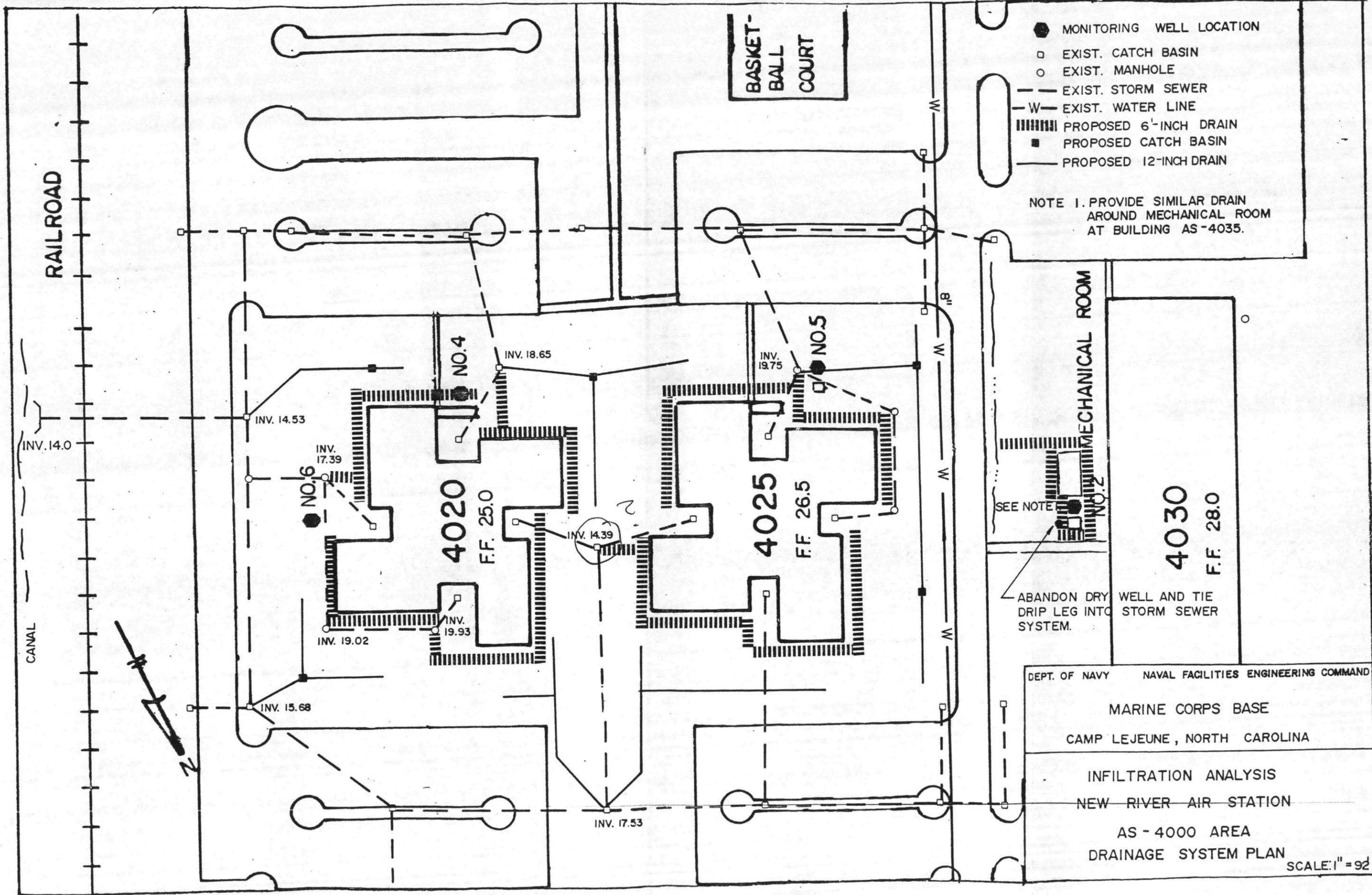
NEW RIVER AIR STATION

AS - 4000 AREA

MONITORING WELL LOCATIONS

SCALE: 1" = 133'





- MONITORING WELL LOCATION
- EXIST. CATCH BASIN
- EXIST. MANHOLE
- - - EXIST. STORM SEWER
- W - EXIST. WATER LINE
- ||||| PROPOSED 6'-INCH DRAIN
- PROPOSED CATCH BASIN
- PROPOSED 12'-INCH DRAIN

NOTE 1. PROVIDE SIMILAR DRAIN AROUND MECHANICAL ROOM AT BUILDING AS-4035.

MECHANICAL ROOM

4030  
F.F. 28.0

NO. 2

SEE NOTE

ABANDON DRY WELL AND TIE DRIP LEG INTO STORM SEWER SYSTEM.

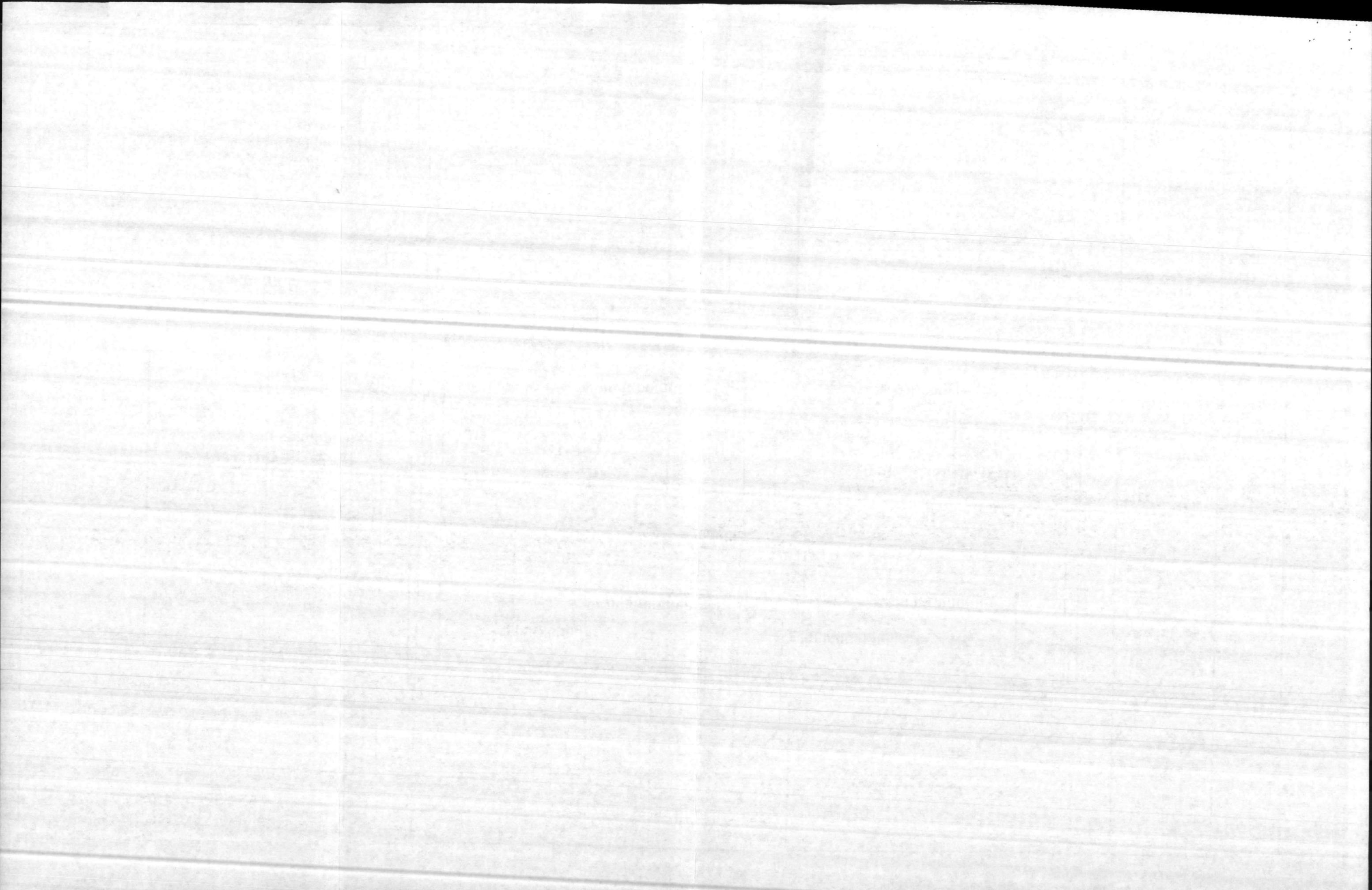
DEPT. OF NAVY      NAVAL FACILITIES ENGINEERING COMMAND

MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA

INFILTRATION ANALYSIS  
NEW RIVER AIR STATION

AS - 4000 AREA  
DRAINAGE SYSTEM PLAN

SCALE: 1" = 92'



**MATERIAL & LABOR COST ESTIMATE**

PREPARED BY HOBBS, UPCHURCH & ASSOC., P.A.

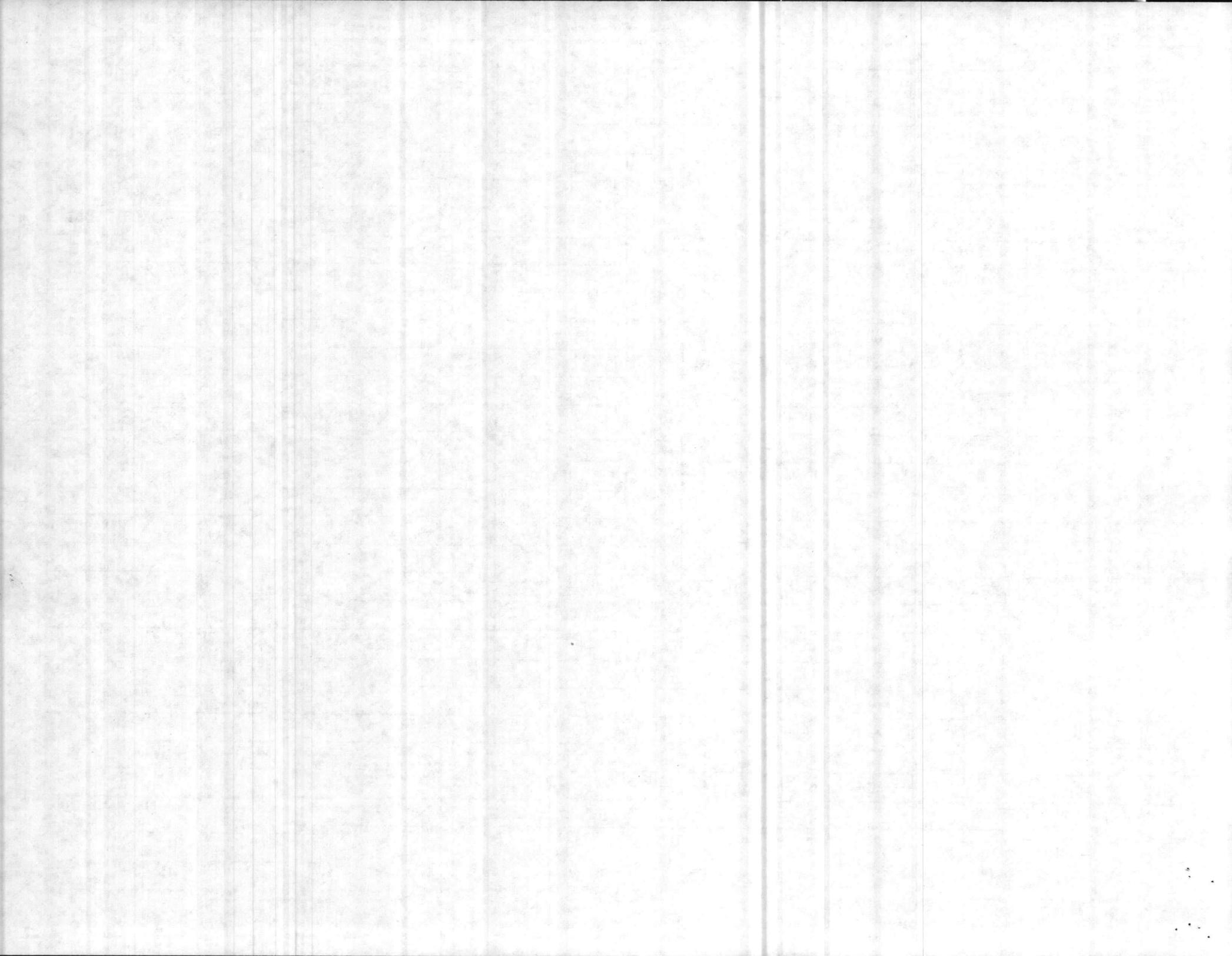
FUNDS AVAIL. \_\_\_\_\_

SHEET 1 of 6

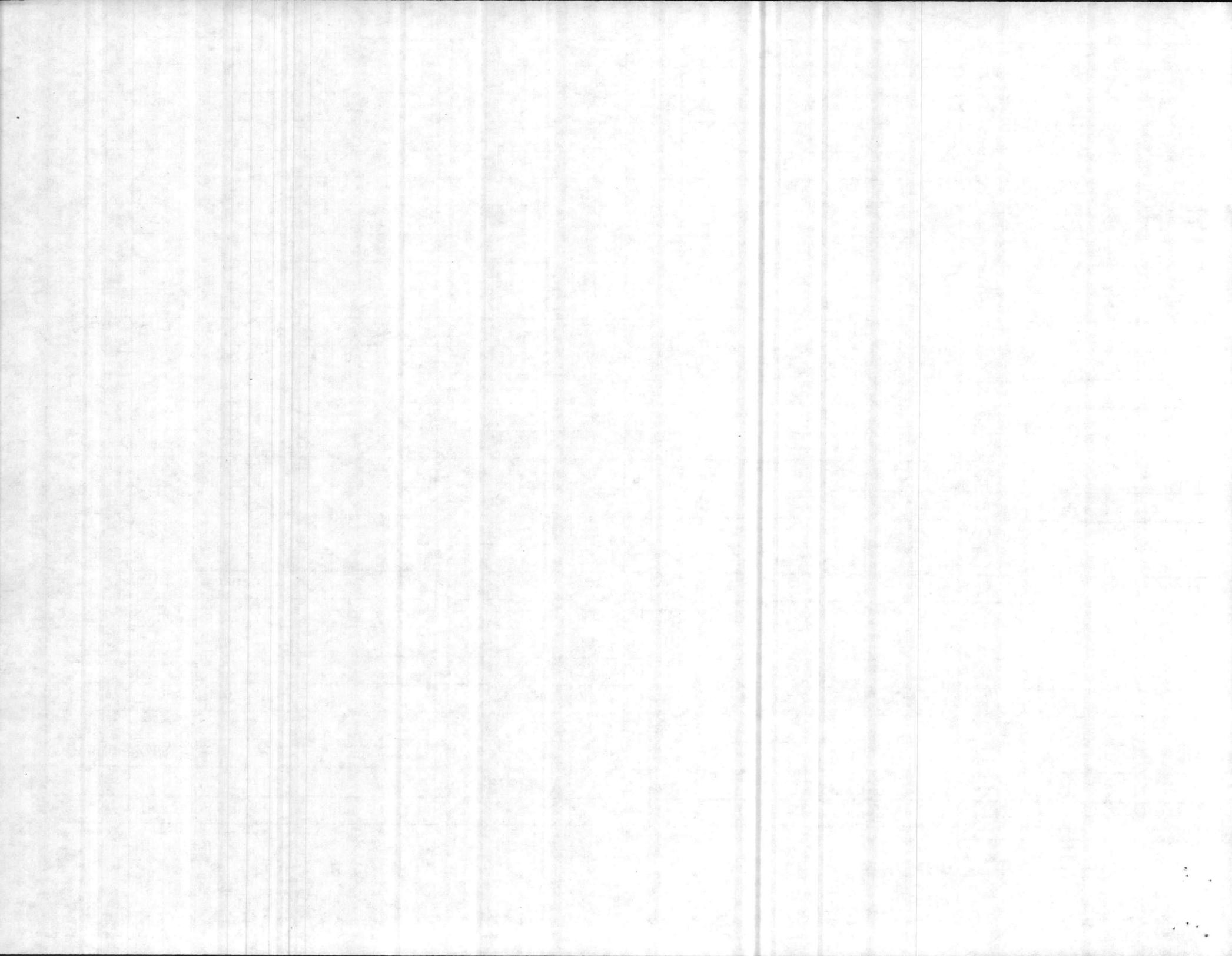
Const. Contr. No. \_\_\_\_\_

DATE 7-30-86

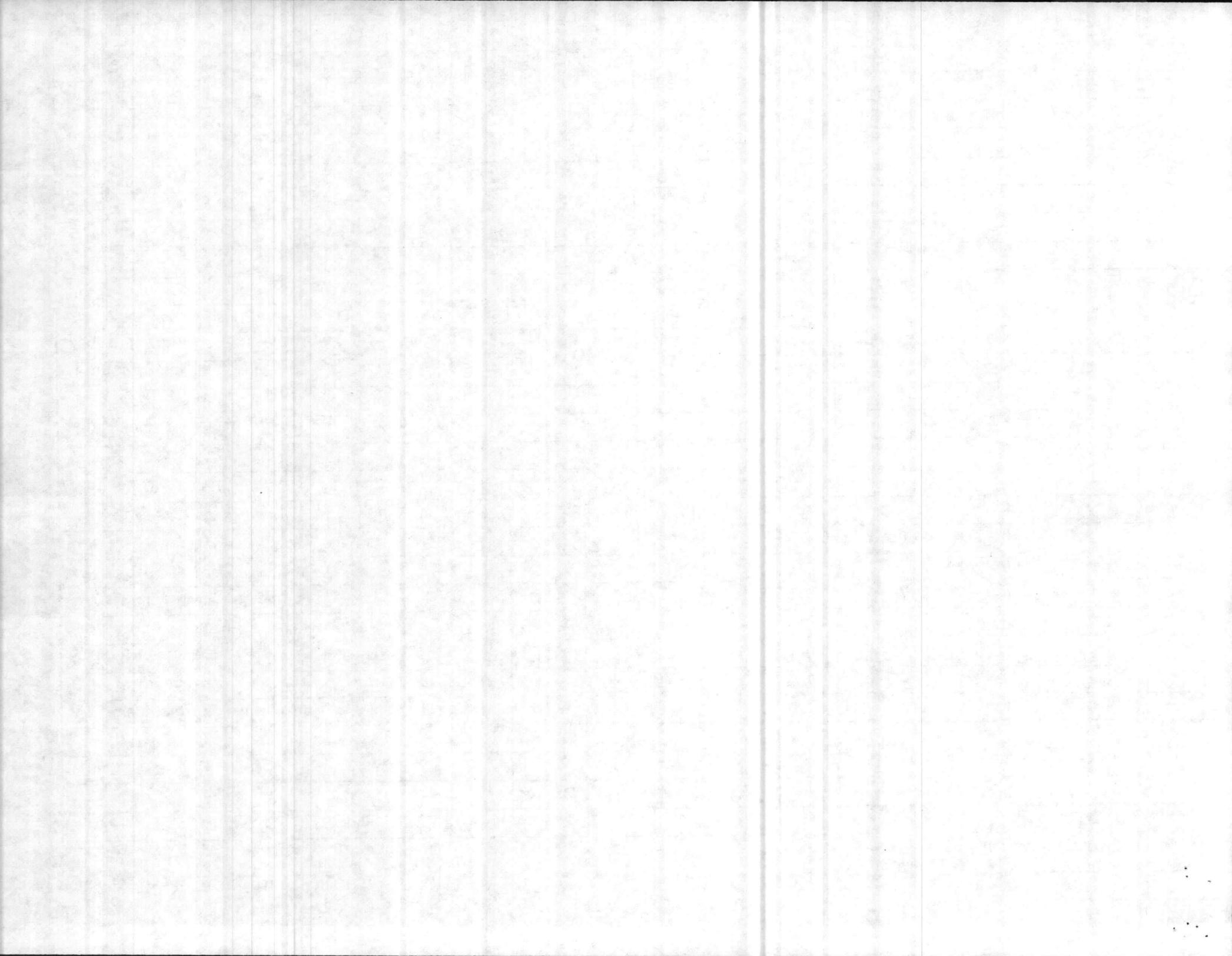
PROJECT INFILTRATION AS 4000 AREA			LOCATION CAMP LEJEUNE				<input type="checkbox"/> PRELIM. <input checked="" type="checkbox"/> FINAL	
ITEMS	QUANTITY	UNIT	MATERIAL COST		LABOR COST		TOTAL COST	REMARKS
			UNIT	TOTAL	UNIT	TOTAL		
Joint & Crack Repair								
Grinding	1	LF	1.10		2.32			
Prime	1	LF	0.30		2.33			
Calk	1	LF	0.25		0.60			
TOTAL	1	LF	1.65		5.25			
500 LF Joint Repair	500	LF	1.65	825.00	5.25	2625	3450	
Dewater								
Well Points 5 @ 25' ea.	1	EA	125		.80			
Pump	1	EA	1750		1200			
Discharge Pipe 50'	1	EA	95		54			
TOTAL			1970		1334			
Well Point	1	EA	1970	1970	1334	1334	3304	
Subtotal				2795		3959	6754	
Payroll Tax @ 18%				-		713	713	
Sales Tax @ 5%				140		-	140	
TOTAL							7607	
Plus 15% Overhead							8748	
Plus 10% Profit							9623	
Plus 1½% Bonds							9767	
Installed Cost For 5 Pits							9767	
Installed Cost Per Pit							1954	











MATERIAL & LABOR COST ESTIMATE

PREPARED BY HOBBS, UPCHURCH & ASSOC., P.A.

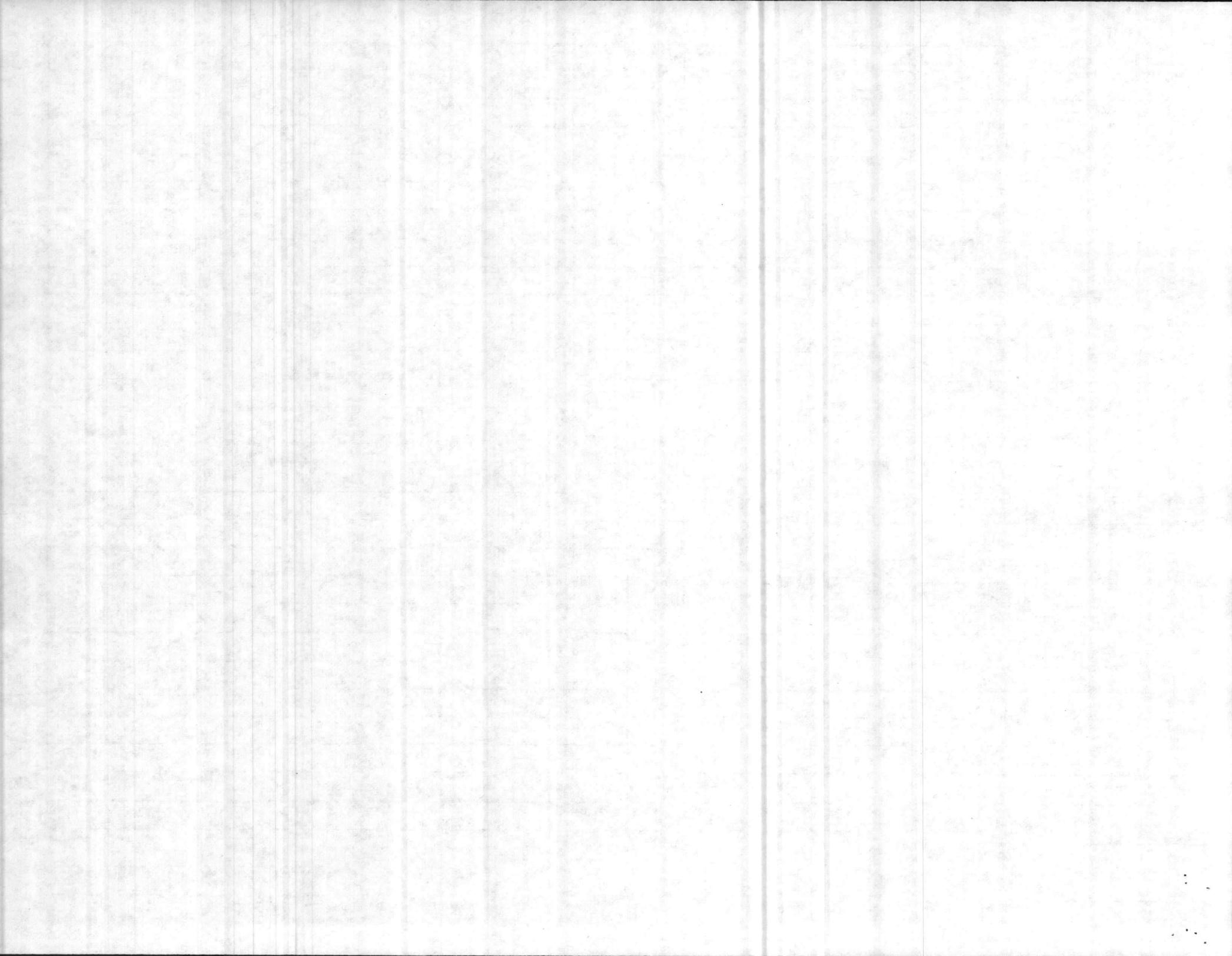
FUNDS AVAIL. . . . .

SHEET 4 of 6

Const. Contr. No. \_\_\_\_\_

DATE 7-30-86

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ITEMS	QUANTITY	UNIT	MATERIAL COST		LABOR COST		TOTAL COST	REMARKS
			UNIT	TOTAL	UNIT	TOTAL		
Drainage System								
4' Dia. Conc. Catch Basin	1	EA	320		100		420	
Frame & Grate	1	EA	100		30		130	
TOTAL				420		130	550	
Sales Tax @ 5%				21			21	
Payroll Tax @ 18%						24	24	
TOTAL							595	
Plus 15% Overhead	89.00						684	
Plus 10% Profit	69.00						753	
Plus 1½% Bonds	11.00						764	
TOTAL INSTALLED COST EA							764	
Connect to Existing Structure	1	EA	70	70	70	70	140	
Sales Tax @ 5%				3.50			3.50	
Payroll Tax @ 18%						12.60	12.60	
TOTAL							156.00	
Plus 15% Overhead							180.00	
Plus 10% Profit							197.00	
Plus 1½% Bonds							200.00	
TOTAL INSTALLED COST EA							200.00	



MATERIAL & LABOR COST ESTIMATE

PREPARED BY HOBBS, UPCHURCH & ASSOC., P.A.

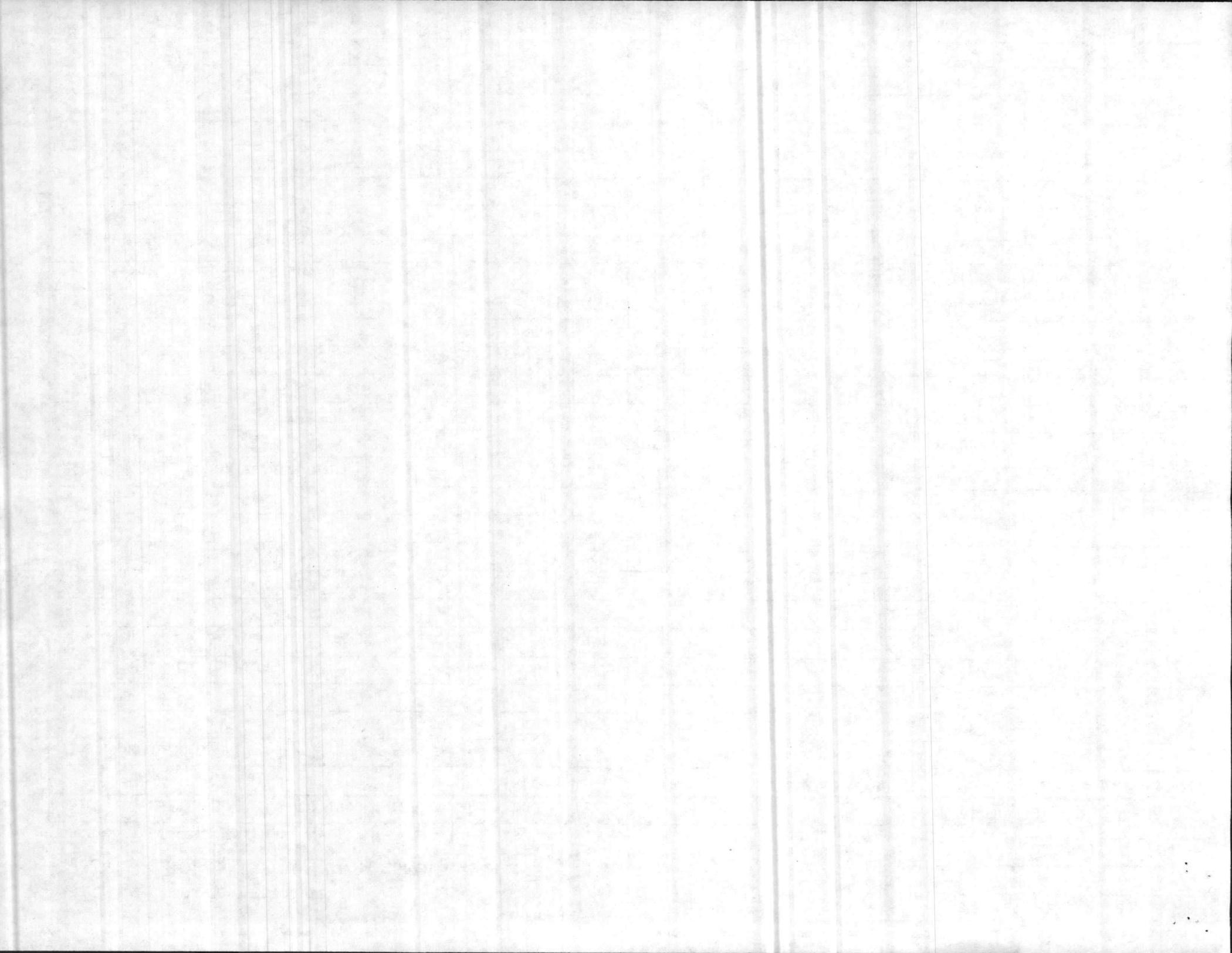
FUNDS AVAIL. . . . .

SHEET 5 of 6

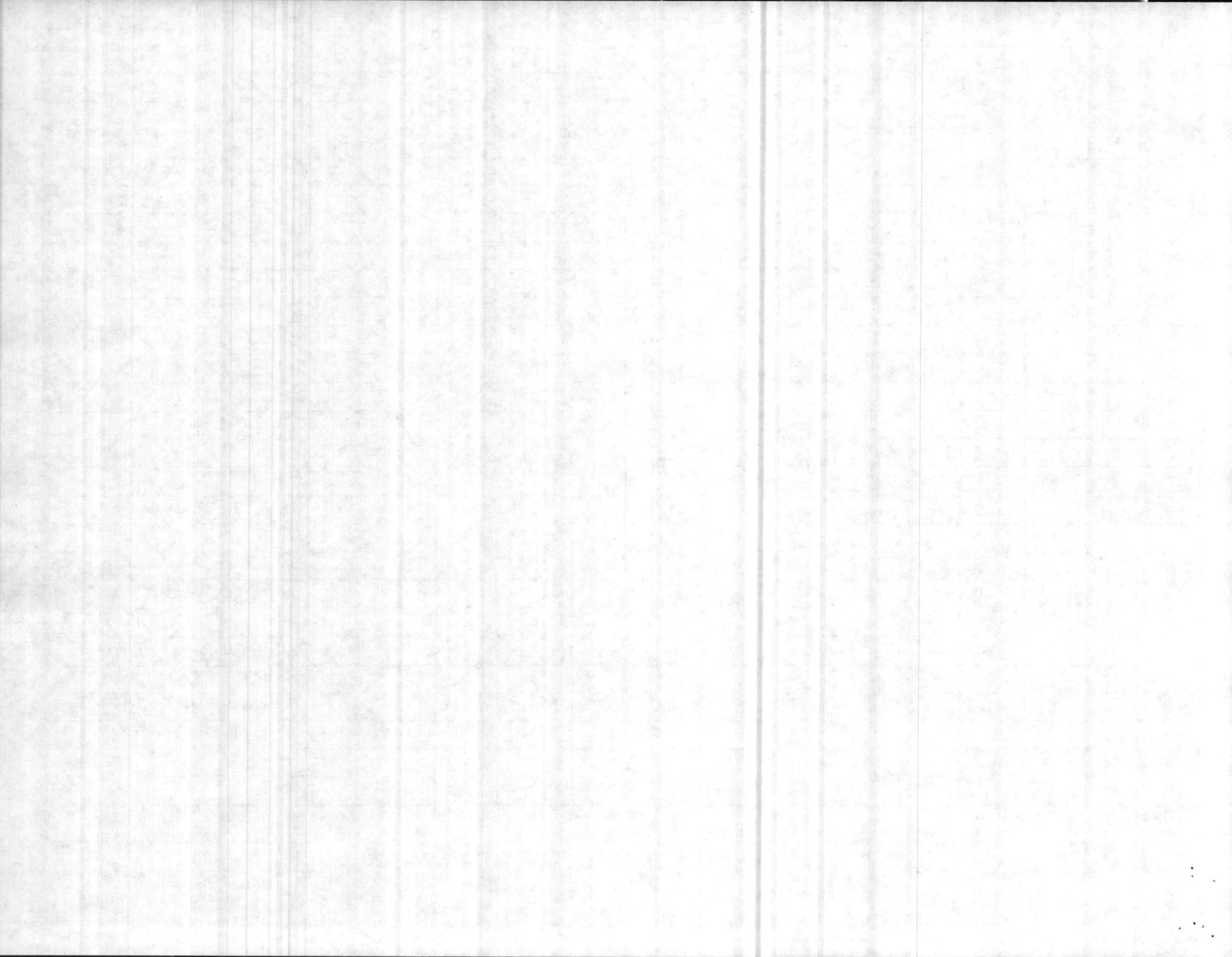
Const. Contr. No. \_\_\_\_\_

DATE 7-30-86

PROJECT INFILTRATION AS 4000 AREA			LOCATION CAMP LEJEUNE				<input type="checkbox"/> PRELIM. <input checked="" type="checkbox"/> FINAL	
ITEMS	QUANTITY	UNIT	MATERIAL COST		LABOR COST		TOTAL COST	REMARKS
			UNIT	TOTAL	UNIT	TOTAL		
Cost by Building								
AS-4035								
6" Perf Drain Pipe	250	LF	7.22				1805	
Joint & Crack Repair	1	Pit	1954				1954	
TOTAL							3759	
AS-4030								
6" Perf Drain Pipe	285	LF	7.22				2058	
Connect To Exist Structure	1	EA	200				200	
Joint & Crack Repair	1	Pit	1954				2258	
AS 4025								
6" Perf Drain Pipe	1,000	LF	7.22				7220	
12" Perf Drain Pipe	850	LF	13.42				11407	
4' Dia Catch Basins	2	EA	764				1528	
Connect to Exist Structures	5	EA	200				1000	
Joint & Crack Repair	1	Pit	1954				1954	
							23109	







# Sikagard 62 High-Build Protective Coating

## Technical Data

**Description:** Sikagard 62 is a 2-component, solvent free, high-solids, epoxy resin, high-build protective and waterproofing coating.

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**Where To Use:** Wherever a high-build, corrosion-resistant, tile-like, protective coating is required on dry or damp structural substrates.

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**Advantages:**

- Protects dry and damp surfaces.
- Exceptional tensile strength.
- Chemical resistant — for long-term protection.
- Convenient 1:1 mixing ratio.
- Easily paintable viscosity with high-build finish.
- Durable, tile-like finish permits wipe-off graffiti-removal.
- Five attractive colors for color-coding
- Outstanding bond to all common structural substrates for stay-in-place performance.
- High abrasion resistance for years of wear.
- After Sikagard 62, gray, is cured, it is in conformity with federal regulations and may be used in areas where it is in contact with potable water.
- All colors have USDA approval for use in food plants.

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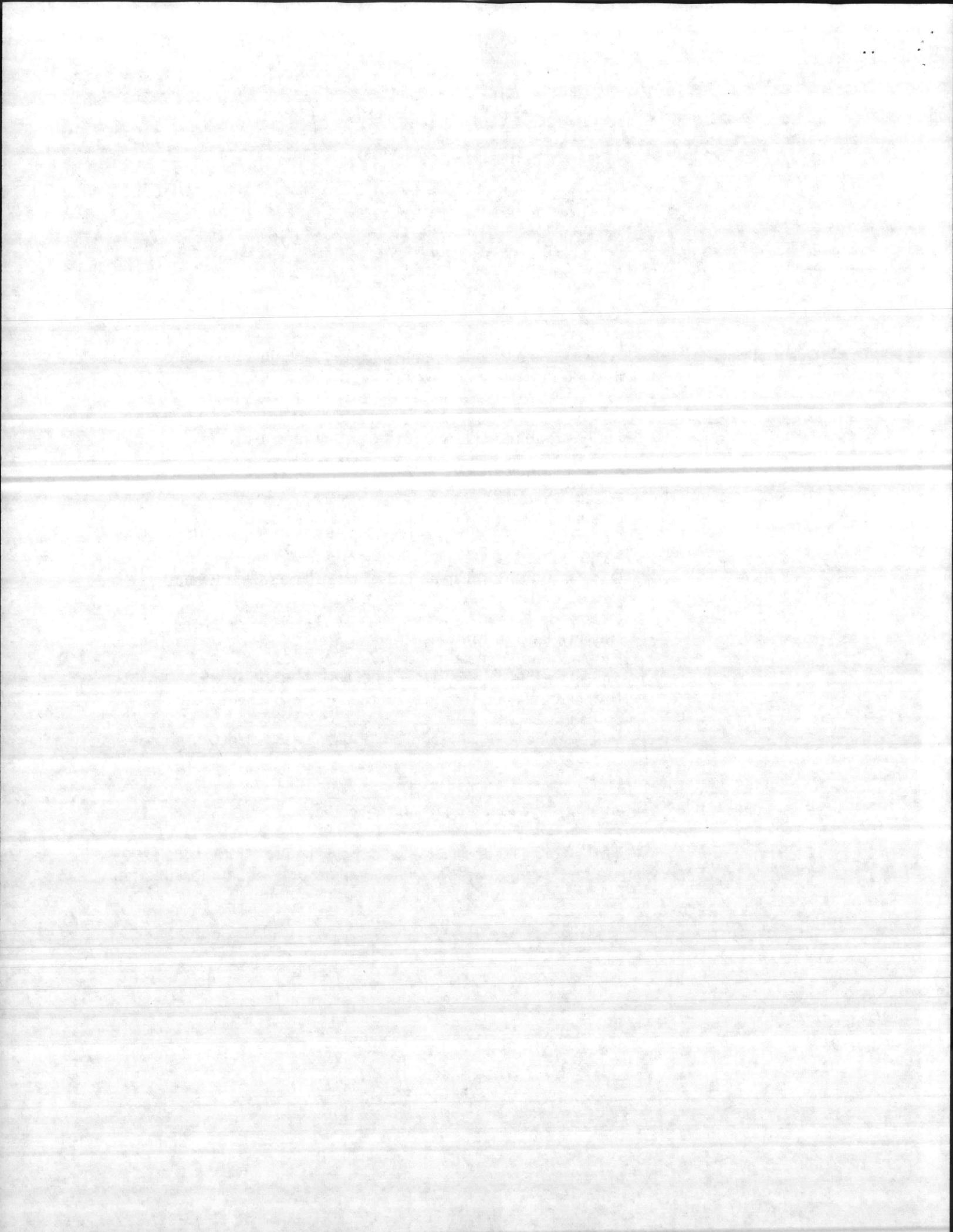
**Packaging:** 10-gallon, 4-gallon, 1-quart units.

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**Coverage:** For brush or roller application at approximately 4-7 mils: 400 to 225 sq ft/gal. Coverage will vary with temperatures, substrate, substrate condition, environment, and application technique.

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GUARANTEED SUPPLY COMPANY  
P. O. BOX 36030 1211 ROTHERWOOD ROAD  
GREENSBORO, NC 27416-6030  
Phone (919) 273-3491  
N. C. Wats 1-800-822-8854



**TYPICAL DATA\***  
(Material @ 73F 50% RH)

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**Storage Conditions:** Store in cool, dry area. Material should be approx 70F during mixing and application for best results.

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**Colors:** Gray, red, yellow, green, tan.

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**Mixing Ratio:** 1:1 for all colors.

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**Shelf Life:** 1 year in original packaging.

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**Pot Life:** 30-40 minutes @ 73F.

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**Tack-Free to Touch:** 5-mil film

40F	7-16 hours
73F	3 to 4 hours
90F	1.5 hours

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**Open Time  
(73F, 50% RH)** Foot traffic: 4 to 6 hours  
Rubber-wheel traffic: 8 to 10 hours  
Chemical exposure: 3 days

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**Viscosity (cps):** A+B approx 2,800 (varies with color)

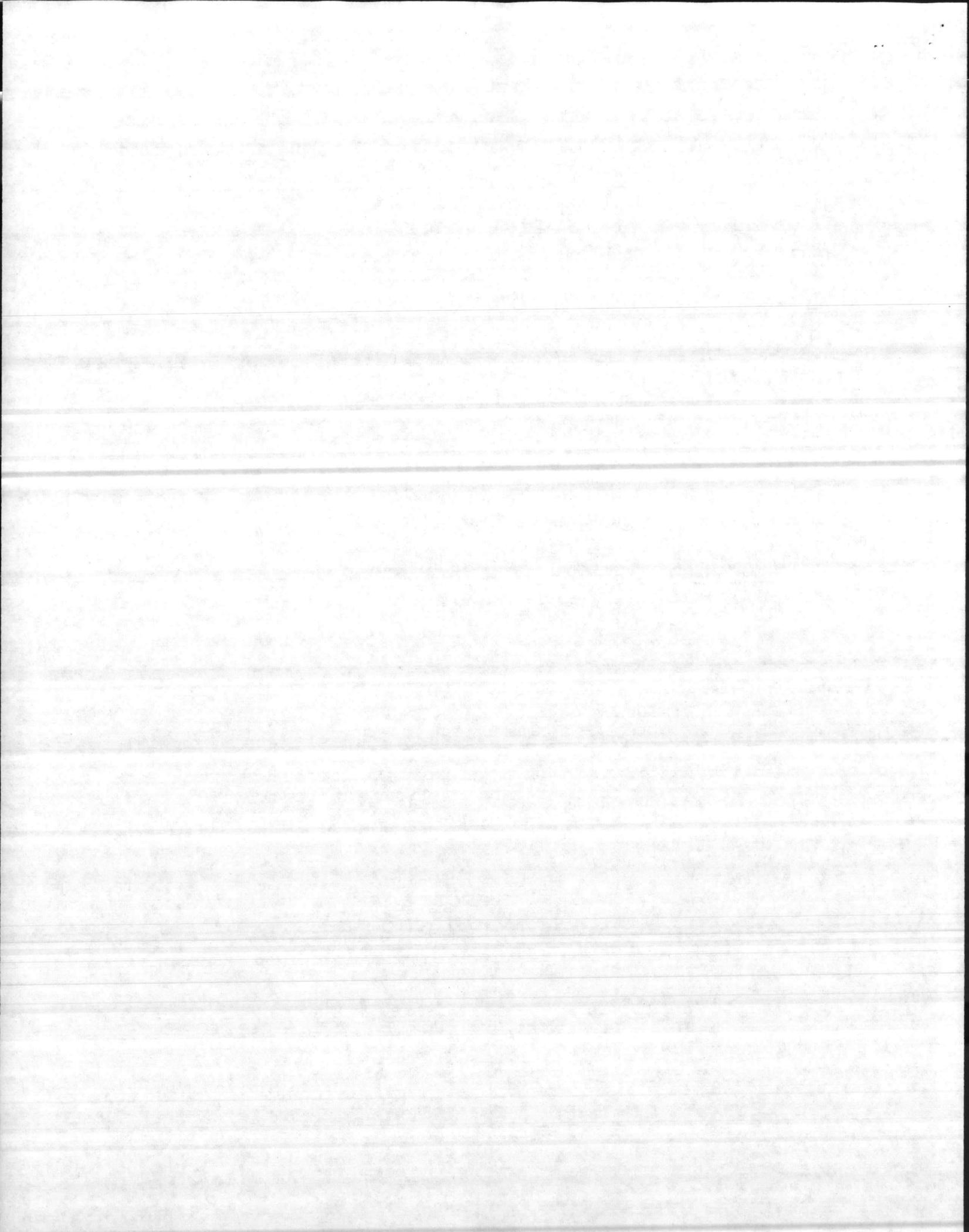
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**Water Pick-Up:** Total water absorption 0.90%  
ASTM D-570  
Procedure 6.5

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**Tensile Properties:** ASTM D-638  
14 days @ 73F  
Strength — 6,400 psi  
Elongation — 2.7%

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**Chemical  
Resistance: (Typical Data)**

Sample: Two coats approximately: 10 mils  
Cured 10 days at 73F ± 2F, 50% RH  
Substrate: asbestos cement

CHEMICAL	TEST TEMP.	STORAGE TIME AND EVALUATION				
		1 Day	1 Month	2 Months	6 Months	12 Months
Water	75F	A	A	A	A	A
	100F	A	A	A	A	A
	140F	A	A	A	A,D	A,D
Sodium Chloride Solution (Saturated)	75F	A	A	A	A	A
	100F	A	A	A	A	A
Sodium Hydroxide 30%	75F	A	A	A	A	A
Cement Water (Saturated)	75F	A	A	A	A	A
Detergent Solution (5% Ajax)	75F	A	A	A	A	A
	140F	A	A	A	A,D	A,D
Hydrochloric Acid 10%	75F	A	A	A	A	A
Sulfuric Acid 10%	75F	A	A	A	B	B
Oxalic Acid 10%	75F	A	A,D	A,D	A,D	A,D
Citric Acid 10%	75F	A	A,D	A,D	A,D	A,D
Fuel Oil (Home Heating)	75F	A	A	A	A	A,D
Gasoline (Unleaded)	75F	A	A	A	A	A,D
Iso-Octane	75F	A	A	A	A	A,D
Toluol	75F	A	A	A	A	A,D
Silage	75F	A	A	A,D	A,D	B,D
Synthetic Silage	75F	A	A	B,D	B,D	B,D
Liquid Manure	75F	A	A	A	A	A,D
Ethyl Alcohol	75F	A	C	—	—	—

**A: Resistant in permanent contact**  
**B: Temporary resistance**

**C: Destroyed**  
**D: Discolored**

## HOW TO USE

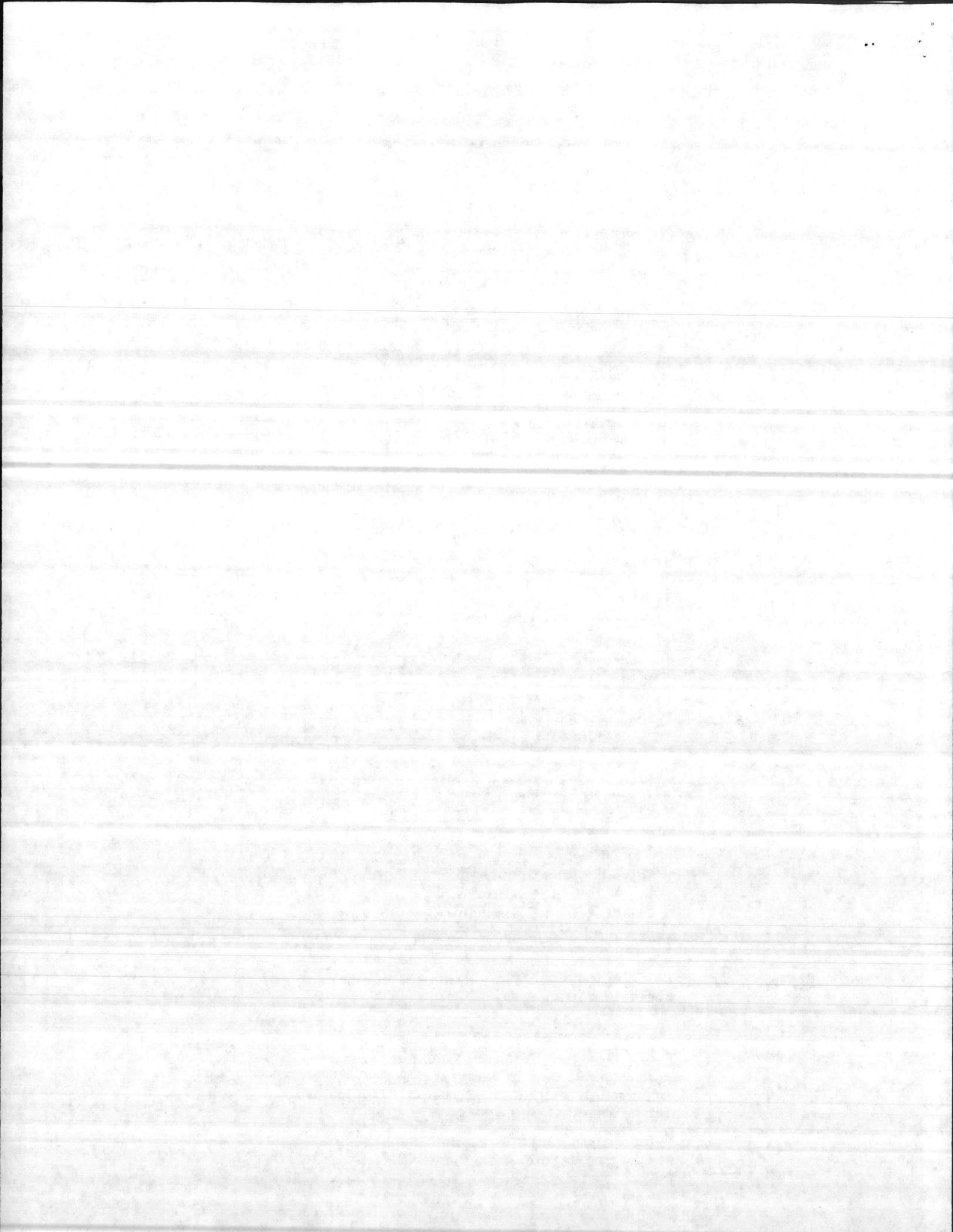
**Surface Preparation:** Clean substrate, remove laitance, curing compounds, other coatings, oil, grease, rust, waxes, or other bond-inhibiting substances by mechanical means. All surfaces must be clean, sound, and free of surface water. Concrete may be damp or in a saturated surface dry condition.

For best results, precondition each component to between 65 and 85F before using.

**Mixing:**

Stir each component before proportioning. Measure out equal volumes of 'A' and 'B' component into clean container. Mix with a Sika mixing paddle attached to a slow-speed (400- to 600-rpm) electric drill for 3 minutes. Mix only that quantity which can be used within the pot life of the material.

For spray application only, thin, if necessary, with up to 5% by volume of Sika Epoxy Thinner.



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**Application:**

Apply to clean substrate. Use 3/8- or 7/16-in.-nap roller, brush, or spray. Two coats are recommended. Second coat must be applied within 48 hr. If interval will be longer, contact SikaService for specific information. Recommended thickness per coat is 4-7 mils.

When spraying, use the following or similar equipment: Binks Model #18 Air-Atomized Spray Gun (#68 fluid nozzle, #68PB air nozzle, #68 fluid needle; #83 — 5661 2-gal pressure fluid tank).

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**Limitations:**

Sikagard 62 forms a vapor barrier. Do not apply to surfaces where vapor condenses and freezes under coatings. Do not encapsulate saturated concrete or mortar where freezing will occur.

Apply only when substrate temperature is 50F or above and relative humidity is 95% or lower. Do not apply over wet (glistening) substrate.

Minimum age of new concrete before coating is 3 to 6 weeks depending on climate.

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**Caution:**

**A COMPONENT — For Industrial Use Only!** May cause injury to skin following prolonged or repeated contact.

**B COMPONENT — DANGER! CAUSES (SEVERE) BURNS.**

Contains alkaline amines: strong sensitizer. Do not get in eyes, on skin, or clothing. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after use.

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**FIRST AID:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 min. Remove contaminated clothing and shoes. Call a physician. Wash clothing before re-use. Discard contaminated shoes, gloves.

Wear protective clothing, goggles, gloves, and/or barrier creams.

For industrial use only. Keep out of reach of children.

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**Guarantee**

Every reasonable precaution is taken in the manufacture of all products and compiling of data to assure that they shall comply with Sika's exacting standards. To the best of our knowledge information given is correct and the products as sold are satisfactory for the purpose proposed by Sika. However, no guaranty of results using these products and data is given because every possible variation in methods of use or conditions under which they are applied cannot be anticipated. Sika is not responsible if the material is used in a manner to infringe patent held by others.

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**Distribution**

We put it all together for you...proven products, local Distributors, and a national network of Sika-approved Applicators to give you right-the-first-time repairs.

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**District Offices**

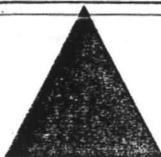
AL. (Atlanta) . . . . .	404-761-7143	IL. Chicago . . . . .	312-298-2810	PA. Pittsburgh . . . . .	412-279-1176
CA. Pasadena . . . . .	213-792-5127	LA. Baton Rouge . . . . .	504-927-1859	SC. Chester . . . . .	803-377-3272
CA. San Francisco . . . . .	415-775-1551	MA. Boston . . . . .	617-631-9247	TX. Dallas . . . . .	214-661-3610
CO. Denver . . . . .	303-458-7452	MD. Annapolis . . . . .	301-268-7774	TX. Houston . . . . .	713-461-3010
CT. Hartford . . . . .	203-249-7066	MI. Southfield . . . . .	313-552-1012	VA. (Chester, SC) . . . . .	803-377-3272
FL. Jacksonville . . . . .	904-398-7452	MO. St. Louis . . . . .	314-533-1683	WA. Redmond . . . . .	206-883-8758
FL. Tampa . . . . .	813-879-9862	NJ. Lyndhurst . . . . .	201-933-8800	WI. Milwaukee . . . . .	414-272-3100
GA. Atlanta . . . . .	404-761-7143	NC. (Chester, SC) . . . . .	803-377-3272	TN. (Atlanta) . . . . .	404-761-7143

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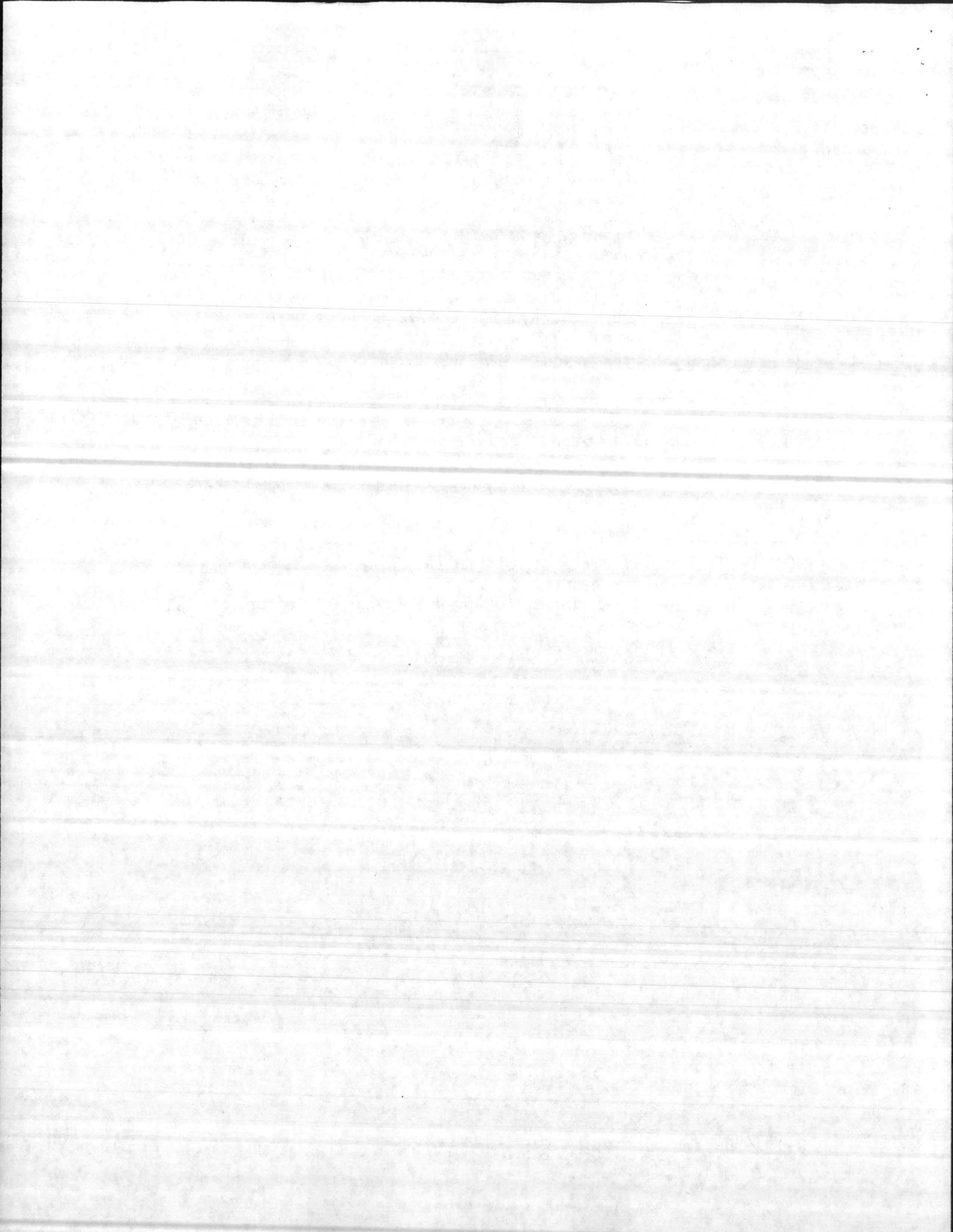
**Executive Office**

P.O. 297, Lyndhurst, NJ 07071 • Tel. 201-933-8800 • TWX 710-989-0288

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**Sika Corporation**



# Sikaflex-1a Elastic Sealant/Adhesive

## Technical Data



**Description:** Sikaflex-1a<sup>®</sup> is a premium-grade, high-performance, moisture-cured, 1-component, polyurethane-base, non-sag elastomeric sealant.

**Where To Use:** Designed for all types of joints with maximum depth of ½ in.  
Excellent for small joints and fillets... windows, door frames, reglets, flashing, and many construction adhesive applications  
Suitable for vertical and horizontal joints; readily placeable at 40F  
Has many applications as an elastic adhesive between materials with dissimilar coefficients of expansion.

**Advantages:**

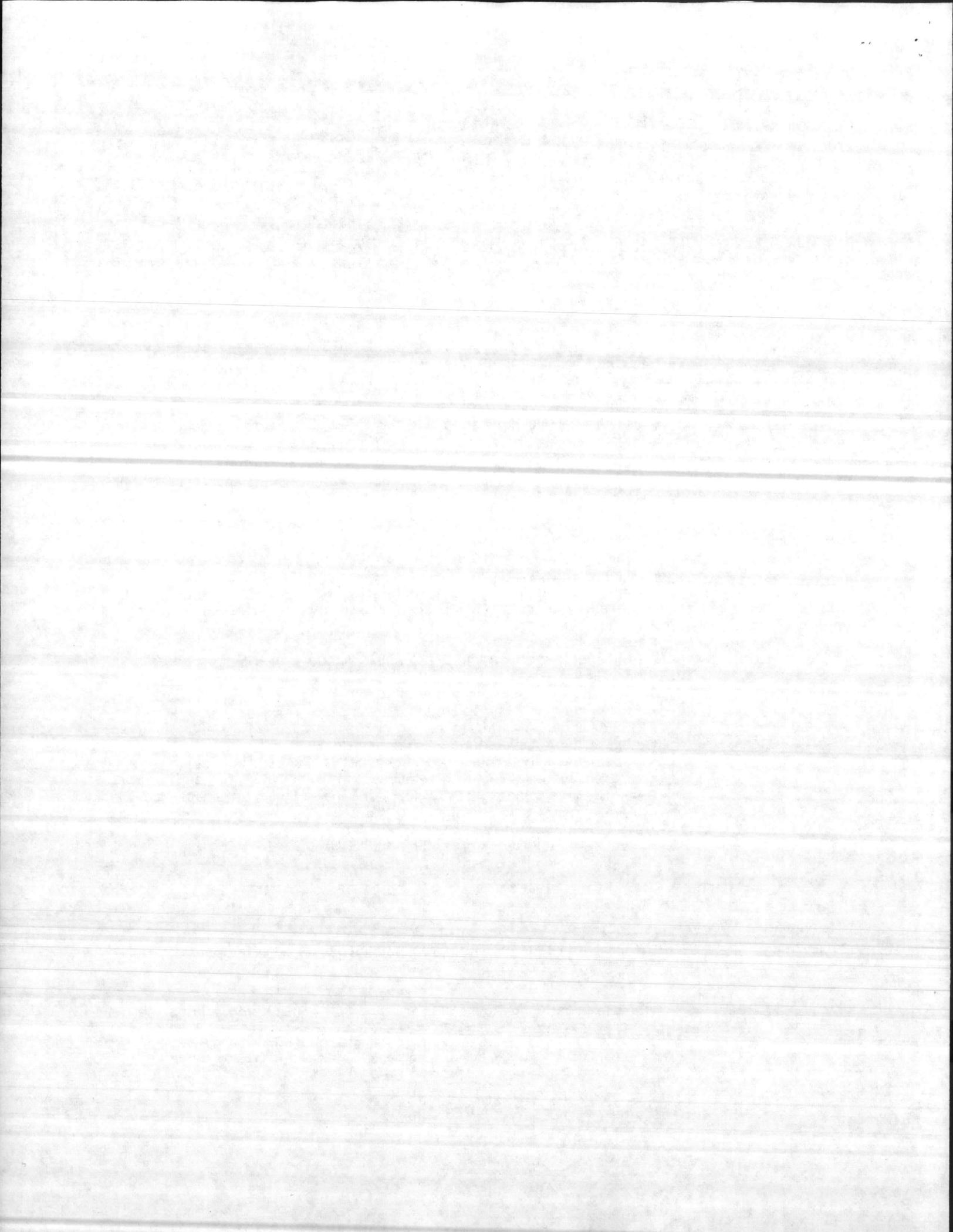
- Easy, low-cost, ready-to-use
- Eliminates time, effort, and equipment for mixing, filling cartridges, pre-heating or thawing, and cleaning of equipment
- High elasticity  
Cures to a tough, durable, flexible consistency with exceptional cut- and tear-resistance
- Excellent adhesion  
Bonds to most construction materials... without primer in most cases
- Long life
- Excellent resistance to aging, weathering
- Proven in tough climates around the world
- USDA- and FDA-approved†
- Approved for use in contact with potable water
- Resists fuel, mineral oils, and dilute minerals, plant and animal fats
- Odorless, non-staining. Can be painted over with water-, oil-, and rubber-base paints. Since some paints dry slowly and the surface may remain slightly tacky, a preliminary test is essential.
- Meets Fed Spec TT-S-00230C, Type II Class A.
- Meets EPA regulations on water extractability
- Meets Canadian Standard 19-GP-16A, Type II.

**Coverage:** 11-fl-oz cartridge seals 26 lin ft of ¼-in. × ¼-in. joint or 23 lin ft of ⅜-in. fillet.

**Packaging:** Disposable 11-fl-oz, moisture-proof aluminum cartridges, 24/case, 1.8- and 4.5-gal pails, and 20-fl-oz sausages, 20/carton.

†Chemically acceptable to the U.S. Department of Agriculture for use in meat and poultry processing area under federal inspection. Meets FDA Regulation Title 21 on Indirect Food Additives, as found in Part 174; Part 175, Paragraph 175.105; Part 177, Paragraph 177.1680, and Paragraph 177.2600, being composed of ingredients acceptable for packaging and transporting food.

GENERAL SUPPLY COMPANY  
P. O. BOX 36030 1211 ROTHERWOOD ROAD  
GREENSBORO, NC 27416-6030  
Phone (319) 273 3191  
N. C. Wats 1-800 333 6634



## Technical Data on Sikaflex-1a

**Colors:** White, colonial white, aluminum gray, limestone, black, dark bronze, capitol tan. Special architectural colors on request.

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<b>Shelf life at 70F:</b>	cartridges	9 months
	1.8-gal pail	4 months
	4.5-gal pail	4 months
	sausages	6 months

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**Weight** 10.3 lb/gal

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**Basis:** Moisture-curing polyurethane prepolymer

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**Modulus of elasticity \*  
(ASTM D412):** 25% — 45 psi  
50% — 60 psi  
100% — 132 psi (cured and tested after 21 days at 73F/50% RH)

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**Priming:** Priming not usually necessary. Where substrate requires priming, see "How to Use".

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**Application temperature:** 40F to 100F. Sealant should be installed when joint is at mid-range of its anticipated movement.

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**Service range:** -40F to 150F

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### Curing rate

73F/50% RH

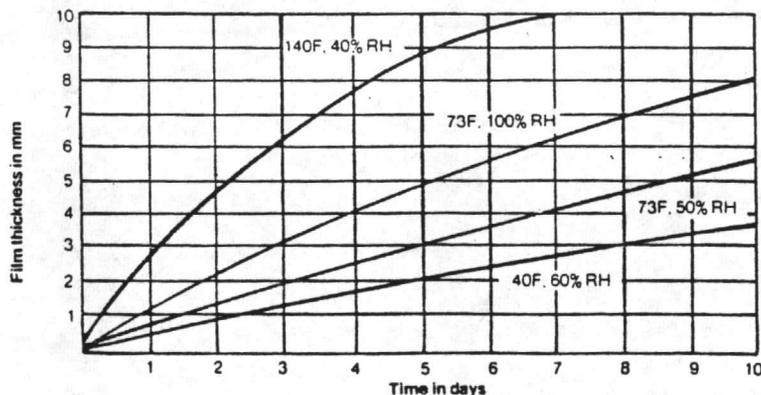
tack-free time: 6 to 8 hr (TT-S-00230C)

tack-free to touch: 3 hr

final cure: 5 to 8 days

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Values in terms of temperature and relative humidity (RH).



**Recovery:** >90%

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**Shore A Hardness:** 40 ±5 (cured and tested after 21 days at 73F/50% RH)

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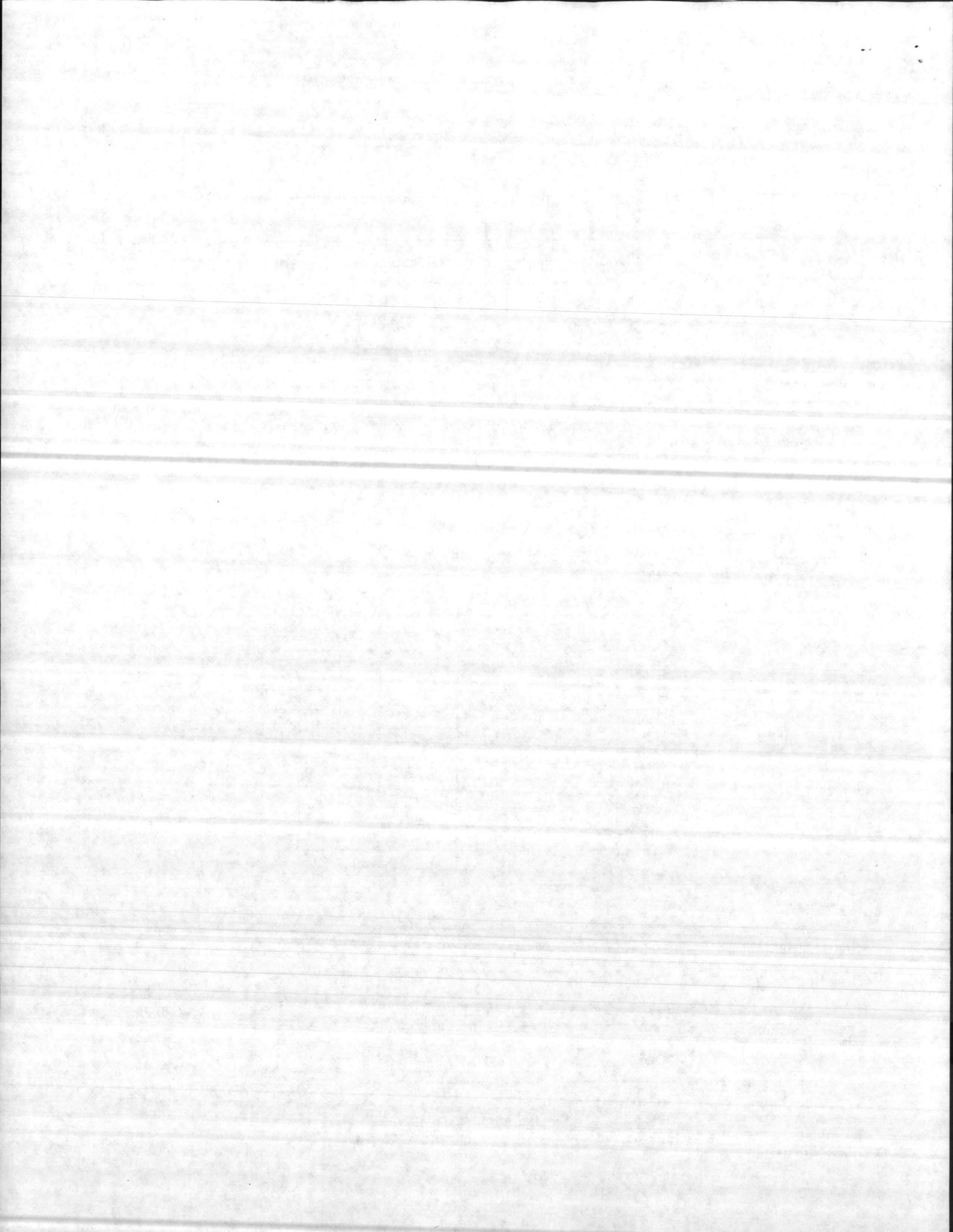
<b>Tensile strength (at break):</b>	190 psi	ASTM-D 412
		(cured and tested after 21 days at 73F/50% RH)
<b>Elongation (at break):</b>	700%	

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**Lap-shear strength  
(ASTM-D 1002  
modified,  
glass substrate):** 50F (cured and tested after 21 days): 120 psi  
73F (cured and tested after 21 days): 125 psi  
122F (cured and tested after 21 days): 125 psi

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\*Figures given are actual test results. Individual batches may vary somewhat.



Adhesion in peel (TT-S-00230C):	material	peel strength	adhesion loss
		lb	%
	Aluminum	25	10
	Glass	20	5
	Concrete	20	0

**Weathering:** Excellent after 40-mo Isotech exposure tests

**Ozone resistance:** Excellent

**Tear resistance:** Exceptional

Chemical resistance:	long term	medium term	short term
	water dilute acids dilute alkalines sewage	mineral oil vegetable oil fats fuels	organic solvents paint diluents strong acids strong alkalines

Data is intended as a general guide for different applications

- Important considerations:**
- Use opened cartridges the same day
  - When applying sealant, avoid air entrapment
  - Protect from action of water during curing period
  - Since system is moisture-cured, permit sufficient exposure to air
  - White color tends to yellow slightly
  - Observe additional comments listed in the Technical Data.

## HOW TO USE

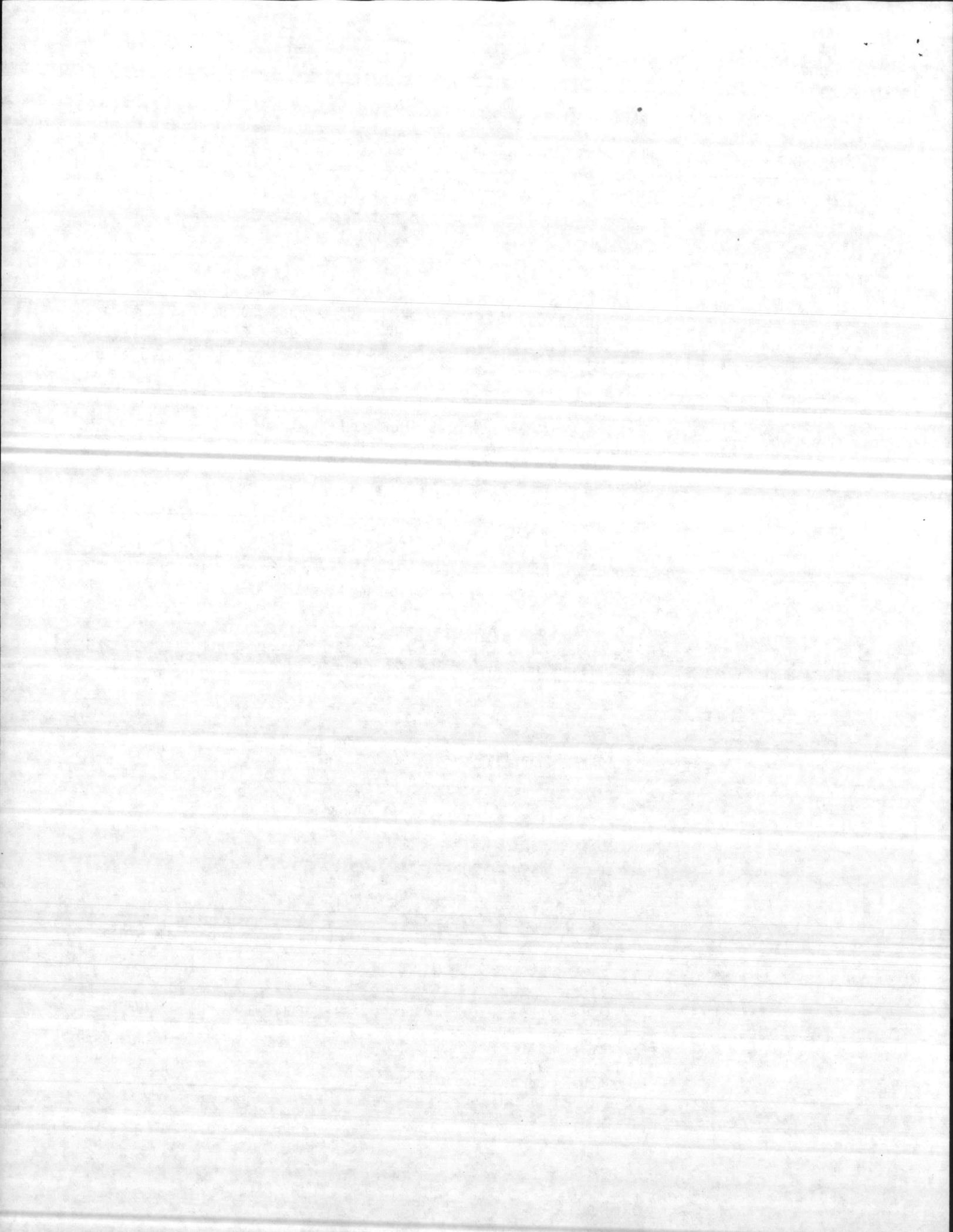
The ultimate performance of Sikaflex-1a depends on good joint design and proper application. Maximum expansion/contraction should not exceed  $\pm 25\%$  of average joint width.

**Surface preparation:** Clean all surfaces. Joint walls must be sound, clean, dry, and free from oil and grease. Curing compound residues and any other foreign matter must be thoroughly removed. Install bond breaker to prevent bond.

Priming:	Substrate	Primer
	Sound, clean concrete, brick and woods  Plexiglass, plasticized p.v.c., solvent-based enamel, fluorocarbon <sup>1</sup> PPG's Duranar finish Stainless steel, non-ferrous metals, etc. Anodized aluminum, glass ceramics	Generally none; but for maximum performance or where condition of joint may be suspect, or joint will be immersed in water, use Sikaflex Primer 429.  Sikaflex Primer 449 Sikaflex Primer 260 Generally none; but for maximum performance or where condition of joint may be suspect, or joint will be immersed in water, use Sikaflex Primer 260.  Note: Once can of Sikaflex Primer is opened, materials should be used up. Do not reseal partially used containers as primer reacts to atmospheric moisture

Apply single uniform coat of Sikaflex Primer by brush. Under normal conditions, allow Sikaflex Primer 429 to dry 45 minutes; Sikaflex Primer 260 for 1 to 2 hr. Sikaflex must be installed within 8 hr, if not, reprime the surface.

<sup>1</sup>other types of fluorocarbon must be tested.  
Call SikaService.



**Application:**

Recommended application temperatures: 40F-100F. For cold-weather application, store units at approx 70F; remove just prior to using. Make sure joint is frost-free. Push tip of nozzle into extrusion end of cartridge to puncture airtight seal. Affix nozzle to cartridge, cut tip to joint size. Install with hand- or power-operated caulking gear.

For best performance, Sikaflex-1a should be gunned into joint when joint slot is at mid-point of its designed expansion and contraction.

To facilitate tooling, wet pointing tool or finger with soap solution.

**Limitations:**

Allow 1-week cure when using Sikaflex-1a in total water-immersion situations. Do not use in joints deeper than 1/2-in. Not to be used on polyethylene, polypropylene, and teflon.

**Clean up:**

Uncured Sikaflex-1a may be removed from tools with Sika Equipment Cleaner. Hardened sealant is removed mechanically.

**Caution:**

Avoid contact with skin: wash hands thoroughly after use.

For industrial or commercial use only. Keep out of reach of children.

**FHSLA TOXICITY TEST (16 CFR 1500)**

Primary Skin Irritant  
Eye Irritant

Acute Oral Toxicity  
Acute Inhalation  
Acute Dermal Toxicity

**FHSLA TOXICITY CATEGORY**

Skin irritant  
Eye irritant

Not toxic orally  
Not toxic by inhalation  
Not toxic dermally

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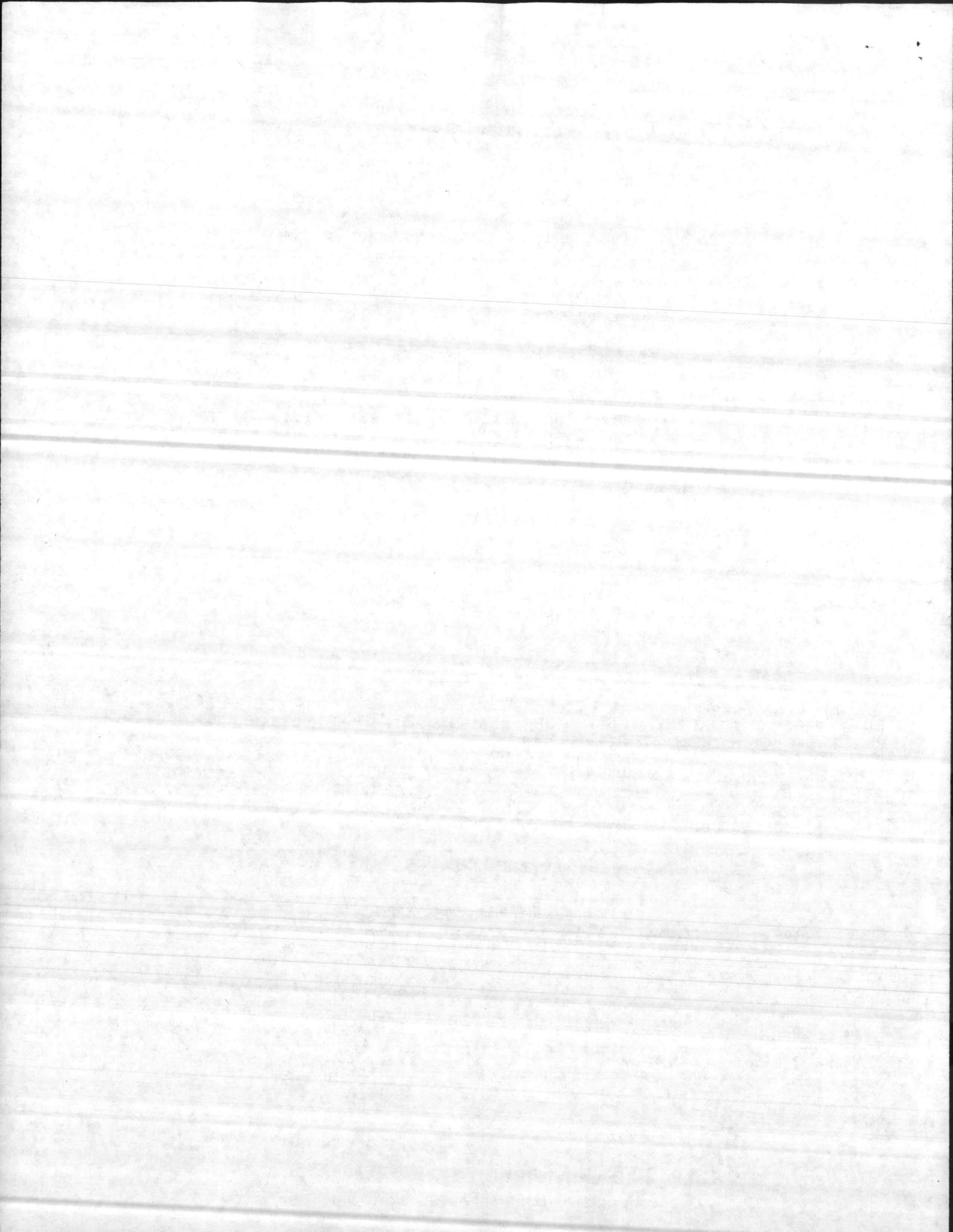
CA, Pasadena . . . . .	213-792-5127	KY, Louisville . . . . .	502-245-8951	NY, No. Syracuse . . . . .	315-452-0998
CA, San Diego . . . . .	619-226-7665	MA, Marblehead . . . . .	617-631-9247	OH, Chesterland . . . . .	216-729-4200
CA, San Francisco . . . . .	415-775-1551	MD, Baltimore . . . . .	301-268-7774	PA, Philadelphia . . . . .	215-923-6575
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FL, Tampa . . . . .	813-879-9862	MS, Jackson . . . . .	601-362-6193	TX, Dallas . . . . .	214-661-3610
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IL, Des Plaines . . . . .	312-298-2810	NJ, Hackensack . . . . .	201-933-8800	WI, Milwaukee . . . . .	414-272-3100

**Executive Office:**

P.O. 297, Lyndhurst, NJ 07071 • Tel. 201-933-8800 • TWX 710-989-0288



**Sika Corporation**  
products/systems/services...worldwide



holding

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**WORK REQUEST (MAINTENANCE MANAGEMENT)**

NAVFAC 9-11014/20 REV. 2-68) S/N 0105-LF-002-7510  
Supersedes NAVDOCKS 2351

(PW Department see Instructions  
in NAVFAC MO-321)

10 SEPT 1987  
H&MS WR # 330-87

PAGE 1 OF 2

Requestor see Instructions on Reverse Side

**PART I—REQUEST (Filled out by Requestor)**

26895-87

1. FROM	2. REQUEST NO.
3. TO	4. DATE OF REQUEST
5. REQUEST FOR <input type="checkbox"/> COST ESTIMATE <input checked="" type="checkbox"/> PERFORMANCE OF WORK	5a. REQUEST WORK START (URGENT) ASAP
6. FOR FURTHER INFORMATION CALL CAPT R. K. TRIPLETT, S-4 OFFICER EXT 6544/6976 GYSGT BOOTS, POLICE SERGEANT AS 4020 EXT 6246	7. SKETCH/PLAN ATTACHED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

8. DESCRIPTION OF WORK AND JUSTIFICATION (Including location, type, size, quantity, etc.)

LOCATION: AS 4020, 1ST DECK, ROOM 151, HOLE IN FLOOR

DESCRIPTION: REQUEST FOR REPAIR OF THE HOLE IN THE FLOOR WHICH IS TWENTY-TWO (22') LONG AND FORTY (40") INCHES WIDE AT ITS WIDEST POINT. THIS HOLE IS TWO (2) TO THREE (3) FEET DEEP AND CREATES A HAZARD TO OCCUPANCY. THIS ROOM CANNOT BE OCCUPIED BY PERSONNEL FOR SANITATION AND MOISTURE PROBLEMS PRESENTED BY THIS HOLE IN THE FLOOR. THE BASE MAINTENANCE PERSONNEL HAD TRACED A WATER LEAK TO THIS ROOM IN EARLY 1986 AND DUG UP THE FLOOR IN ORDER TO REPAIR THE LEAK. WHEN THE BASE MAINTENANCE PERSONNEL FINISHED, THE FLOOR WAS LEFT IN DISREPAIR. THE FLOOR NEEDS TO BE FILLED IN WHERE WATER WAS FOUND UNDER IT AND A NEW FLOOR PUT IN.

JUSTIFICATION: HEALTH AND COMFORT OF PERSONNEL DUE TO UNCOVERED SURFACE WHERE UNWANTED MOISTURE AND INSECTS CAN ENTER/UPKEEP OF GOVERNMENT PROPERTY. THERE IS A NEED TO RE-OCCUPY THIS ROOM.

*R. K. Triplett*  
R. K. TRIPLETT

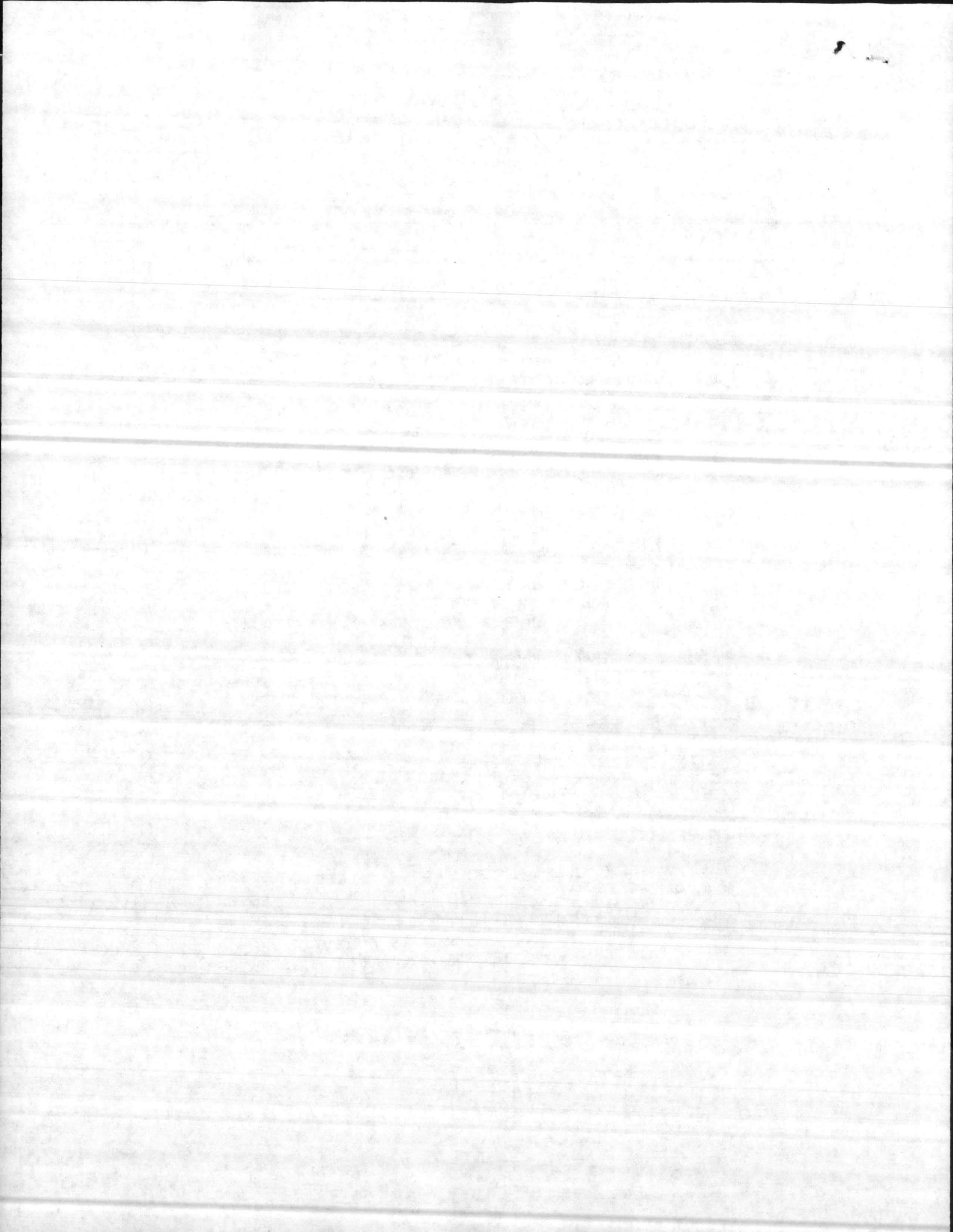
9. FUNDS CHARGEABLE	10. SIGNATURE (Requesting Official)
6. FOR FURTHER INFORMATION CALL <input checked="" type="checkbox"/> PERFORMANCE OF WORK CAPT R. K. TRIPLETT, S-4 OFFICER EXT 6544/6976 GYSGT BOOTS, POLICE SERGEANT AS 4020 EXT 6246	7. SKETCH/PLAN ATTACHED (URGENT) ASAP <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

NOTE: THIS WORK REQUEST IS SUBMITTED AS PER PHONCON BETWEEN MRS. HUGHES OF STATION S-4 AND LCPL GOODING OF H&MS-26 S-4 ON 10 SEPT 1987 AT 1115. MRS. HUGHES ADVISED THAT THE WORK REQUEST WOULD GET MORE FITTING ATTENTION IF SENT THROUGH THE STANDARD CHANNELS INSTEAD OF THE R-1/R-2 PROGRAMS. THIS SQUADRON HAD SUBMITTED FOR R-2 APPROVAL IN SEPTEMBER OF 1986.

*R. K. Triplett*  
R. K. TRIPLETT

9. FUNDS CHARGEABLE	10. SIGNATURE (Requesting Official)
---------------------	-------------------------------------

**PART II—COST ESTIMATE**  
(Filled out by Maintenance Control Division)





UNITED STATES MARINE CORPS  
 MARINE AIRCRAFT GROUP 26  
 2d MARINE AIRCRAFT WING, FMF, ATLANTIC  
 MARINE CORPS AIR STATION  
 NEW RIVER, JACKSONVILLE, NORTH CAROLINA 28545-6070

IN REPLY REFER TO:

11000

S-4/sm

SEP 17 1987

From: Facilities, Marine Aircraft Group 26  
 To: Commanding Officer, Marine Corps Air Station, New River (Attn: S-4)  
 Subj: MAG-26 WORK REQUEST# 26-895-87

1. It is requested that the return endorsement hereon this Headquarters (S-4) be informed of the Station Work Request number assigned subject request.

*C. Howington*  
 Facilities NCO

FIRST ENDORSEMENT

From: Commanding Officer, Marine Corps Air Station  
 To: Commanding Officer, Marine Aircraft Group 26 (Attn: S-4)  
 Subj: MAG-26 WORK REQUEST# 26-895-87

- ( ) Approved and assigned Station Work Request# \_\_\_\_\_
- ( ) Returned for insufficient information
- ( ) Returned and hold for R-1 Program
- ( ) Returned and hold for R-2 Program
- ( ) Returned for hold for Cyclic Maintenance

Other: *There is an M-1 project to correct drainage problems in 4,000 Area. It is not designed, as yet, however and room floor will not be replaced until drainage problem is corrected - (F488 project)*

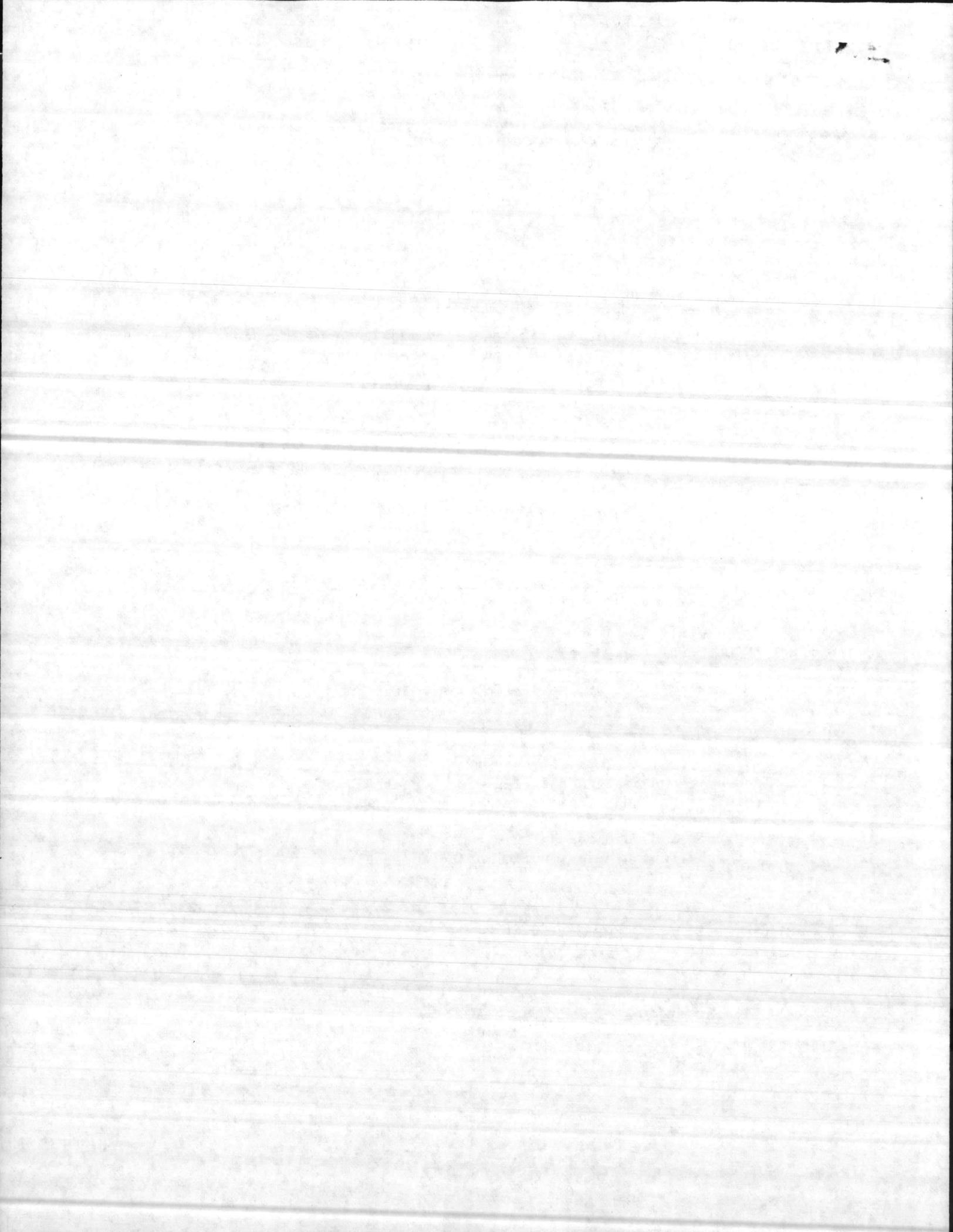
*M. B. Briley*

SQDN

HEMS

SQDN WR#

330-87



M1 CARRY OVER CONTRACTS

*enclosure  
to 15 Sep 87.  
Proposed Maint Program  
letter from [unclear]*

PROJ#	TITLE	CWE
5C50	RPR/UPGRADE REFUELER AS-511 (W/MILCON P-536 FY92 FUNDING)	\$250,000
6C01	CORRECT EROSION, ORDNANCE BUILD	\$20,000
6C51	REPLACE WINDOWS AS-236	\$13,900
6C56	CORRECT WINDOW LEAKAGE AS-710	\$20,000
6C121	REPAIR FLOOR SYSTEM AS-302	\$10,000
6C150	CORRECT GROUND WTR DRAINAGE PROBLEMS AS-4000 AREA	\$65,000
6C153	REPLACE CHILLER AS-226	\$60,200
6C160	REPAIR INT/EXT AS-849, AS-4110, AS-2800, AS-211, AS-820, AS-118 AND AS-240	\$883,000
7C08	REPAIR/REPLACE WTR TANKS (MCAS)	\$250,000
7C36	LIGHTING SURVEY AS-805, AS-903 AND AS-504	\$10,000
7C45	REPLACE FIRE SYSTEM BLDG AS-537	\$30,000
8C15	INT/EXT REPAIR AS-502	\$294,100
8C22	REPLACE A/C SYSTEM AS-302	\$250,000
8M35CN	REMOVE ASBESTOS (MECH RMS) AS-705, AS-3502 AND AS-710	\$50,000
8M35CN	REPLACE SEWER MAINS/MANHOLES (MCAS)	\$72,000
8M39CN	INT/EXT AS-414, REPAVE PARKING LOT (COMBINES WITH NAFI PROJECT FOR ADDITION)	\$315,000
8M42C	DEMOLISH (7) BLDGS (MCAS) RESTORE SITES	\$24,000
8M43CN	REPLACE CONCRETE PAVEMENT, MCAS FUEL FARM	\$61,000
8M46CN	CORRECT MOISTURE PROBLEMS AS207	\$7,000

TOTAL ESTIMATED COST \$2,685,200

*Janet Peterson  
ckky on contract  
for this -  
9-24-87.  
10-6-87  
Nothing in as correction  
ction. 11-Sep-87*

