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ABSTRACT

THE STUDY INVESTIGATES IN PARTICULAR WHETHER THE MULTIPLE USE OF ONE BUILDING PLAN WAS ECONOMICAL, WHETHER LIMITATIONS WERE THEREBY IMPOSED ON THE SCHOOL PROGRAM, AND WHAT INADEQUACIES WERE DISCOVERED IN THE SCHOOL BUILDING CONSTRUCTED. CONCLUSIONS, RECOMMENDATIONS, AND A BIBLIOGRAPHY ARE INCLUDED. (FPO)

# A STUDY OF THREE ELEMENTARY SCHOOLS CONSTRUCTED FROM A SINGLE MODIFIABLE PLAN IN THE EDMONDS, WASHINGTON SCHOOL DISTRICT

by

WILLIAM MARTIN FORTUNE

A thesis submitted in partial fulfillment

of the requirements for the degree of

MASTER OF EDUCATION

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## CHAPTER I

## INTRODUCTION

### Background for the Study

The question of how public funds can be better invested in school construction has been a concern of school boards, state legislators and taxpayers. The Edmonds School District with its rapid growth and school construction program involving two or more new schools per year was no exception in this concern to build schools for less cost. The thought of using "stock plans" or "modifiable plans" has appeal since it suggests a possible savings in architectural services. Because of the pressures to pursue stock plans for school construction at the state and local levels, the Edmonds School Board approved two experimental projects with modifiable plans at the elementary and junior high levels. The purpose of the experimentation was to help determine whether a savings, if any, might result from the use of stock plans.

The first attempt in this direction was the re-use of a junior high plan designed for the Ephrata School District.

> The plans for the Edmonds school were bid as basic "A" and basic "B." Basic "A" conformed to the Ephrata documents, details, and materials as closely as possible while still satisfying code regulations, and district requirements. The basic "B" design deviated from the Ephrata documents in the area of materials, structural, mechanical, electrical, etc., based on decisions by the architect in the best interests of economy and the assurance that the project could be built as bid.[1]

Plan "B" which was redesigned to meet codes, and effect the maximum economy based on bids, represented a savings to the Edmonds School District of $116,050 over the modified Ephrata plan "A." It was later pointed out, however, that the contractor lost approximately $80,000 on the project. This experiment with modifiable school planning showed many of the problems involved, when attempting to adapt a single plan to geographic locations of great contrast.

Experience gained in the junior high project undertaken by the Edmonds School District provided a good background for the second attempt at modifiable school planning on the elementary level. The elementary school experiment in modifiable planning by the Edmonds School District is presented herein. The second project gave a different approach to the re-use of a single plan in that construction took place within the same locality. This suggested a reduction in many of the severe

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[1]State Board of Education, "A Summary of an Experiment Using a Modifiable School Plan," Experimental Research Report (Olympia, Washington: State Board of Education, 1963), p. 25.

problems caused by building codes, weather, and topography, experienced in the junior high project. This background paved the way for the following study.

## Purposes of the Study

One purpose of the study was to evaluate the modifiable plan used for the construction of three elementary schools in the Edmonds, Washington School District. The evaluation sought to answer such questions as: (1) were dollars saved through the multiple use of one building plan? (2) was the school program and progress in school construction limited? and (3) what were some of the inadequacies of the school buildings constructed and how can they be corrected? Were these inadequacies a function of the plan? Another purpose was to assist the Edmonds school administration, board, and public in determining the feasibility of using this particular type of modifiable planning for schools. This purpose included such aspects as: (1) what type of building adapts best as a modifiable plan? (2) what type of building materials are most suitable for a modifiable plan? (3) does a school building plan made up of units adapt better to repeated construction than a plan consisting only of one unit? (4) does the use of a modifiable school plan perpetuate construction and planning problems? and (5) does the use of a modifiable plan insure a better bid price? The third purpose was to evaluate some of the advantages and disadvantages of the multiple use of one plan at the state

level. Questions related to this purpose were: (1) could this be a factor in time saved? and (2) what were the effects of the building and planning process on creativity and new approaches to learning? The fourth purpose was to assist the state in determining the feasibility of encouraging this particular type of modifiable school planning.

## Need for the Study

Over the past several years, legislators have asked the question as to whether several basic modifiable school plans could be prepared at the state level and then be used by districts throughout the state at a consequent saving to the district. Proponents say yes; opponents say no.[2] "Modifiable Plan Bills" were introduced in the Senate sessions in 1953, 1955, 1957, 1959, and 1961. In 1959, Senate Bill No. 392 was defeated on the Senate floor by a close vote.[3]

In June, 1959, the State Board of Education set up a controlled experiment to test the provisions set forth in Senate Bill No. 392. The experiment was to include one junior high project and one elementary project. The junior high project involved the Ephrata and Edmonds School Districts.[4]

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[2]State Board of Education, "The Use of Modifiable or Stock Plans for School Buildings" (Olympia, Washington: State Board of Education, 1963), p. 2. (Mimeographed.)

[3]State Board of Education, "A Summary of an Experiment Using a Modifiable School Plan," Experimental Research Report (Olympia, Washington: State Board of Education, 1963), p. 1.

[4]State Board of Education, op. cit., p. 48.

Evidence from the study tended to indicate many shortcomings in modifiable school planning. Although some research has been done in the area of modifiable school planning, it has been limited in terms of sampling, level, geography, and so forth. This study should contribute additional information to help substantiate or disprove data already established.

## Methods of Research and Sources of Data

The historical method of research was the prime method used to conduct this study. This included: (1) a study of Forms B-5 to B-8 from the State Board of Education, (2) the examination of bid data and cost records of the entire project, (3) a study of the plans, change orders, and specifications, and (4) publications and related literature in the field. Another method of research used which assisted in the examinations and evaluations of data and records collected through the historical method, was the descriptive survey. The descriptive survey method included: (1) interviews and conferences with school officials, state officials, and the architect, and (2) questionnaires completed by school officials and personnel, state officials, and the architect.

The chief sources of data were the school building plans and specifications, Forms B-5 through B-8, and bid and cost data on file in the Edmonds School District and architect's offices. Other pertinent information was obtained

through many interviews, meetings, and conferences with school administrators, state officials, and the architect.

## Limitations of the Study

The study was limited in many ways. It covered only one type of stock planning, and was limited to the shortcomings and restrictions of the plan used. The plan used was based on the Edmonds School District philosophy of elementary education and included twenty basic classrooms. The study was also limited to the Edmonds geographic location, and the adaptation of construction and materials suited to western Washington climate. The varying conditions applying only to one site such as drainage, elevation, and limited access were limitations. Other limitations were state and local building codes and regulations, and financing within the state ceiling.

## Definition of Terms

Educational consultant. The educational consultant is a key person in many school plant studies.[5] He supplies the expertness which is required in any cooperative study of planning for a school building which will adequately accomodate the school program required in any given community. The consultant is an expert on the various facets of the school

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[5]John H. Herrick and others, From School Program to School Plant (New York: Henry Holt and Company, 1956), p. 149.

program and should be qualified to assist the school board, superintendent, teachers, and school planning committees in determining the requirements of the school program to be housed. He should have a knowledge of instructional practices and procedures, and an understanding of public and school administration. He should have a knowledge of school buildings; he must know what kinds of facilities are effective in fostering various phases of the school program and must be familiar with construction methods and materials. Since the educational consultant is an educator, state departments of education and the education departments or schools of colleges and universities are likely places to secure educational consultant services. Some larger school districts have educational consultants on their staff.

Educational planning. Educational planning encompasses all planning activities, both before and during the architectural work, which are necessary to determine the number and general character of the facilities within the completed building and on the site, insofar as they have a bearing on the successful functioning of the desired school program and the efficient operation of the physical plant.[6] Since the major focus in educational planning is on the school program, it follows that educational planning is an aspect of school administration rather than a branch of

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[6] Ibid., pp. 104-5.

architecture. Thus, members of the educational planning staff should be essentially educators by preparation and experience. Educational planning is distinctly different from the school-plant survey. The survey is a study designed to develop a comprehensive building program for a school district over a period of years. The details concerning a specific building project following the survey encompass the educational planning phase of school building.

Architectural service. Architectural service is rendered through the selected architect who has the responsibility of planning the school and handling the technical, administrative, and financial problems involved in its construction. He coordinates the services of all engineers and technicians involved in the design of the school and directs the construction of the building by contractors. He accepts the specifications handed down by the planners of the building, makes suggestions to help them in keeping their work on a practical level, designs a building which will house the school program specified.

Stock plan. The stock plan idea is somewhat controversial at the present time. It is appealing to the typical taxpayer, as it suggests a substantial saving by eliminating the cost of architectural services.[7] Some evidence indicates

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[7]American Association of School Administrators, Planning America's School Buildings (Washington, D. C.: American Association of School Administrators, 1960), p. 189.

that changing the school design for each site may help reduce the per square foot cost despite the rising cost index. This appears possible because it permits the use of more economical materials. Construction costs for a stock plan could be expected to rise proportionately with the cost index.[8] It appears easier to keep pace with the changing face of education when using a separate design for each building than when using a stock plan.

Classroom. The classroom is the basic element in every school building where learning activities are carried out. These instructional areas may be classified as regular classrooms and specialized classrooms. Regular classrooms are generally alike throughout the building, and contain from 600 to 1200 square feet of floor space.[9] Furniture and equipment found in a regular classroom is a general type that is adaptable to the basic subjects. Specialized classrooms vary in size according to the activity. Equipment is specialized and generally used only for the particular subject involved. Specialized classrooms include such subjects as shop, home economics, physical education, and science. The library and auditorium represent specialized classrooms used by all students for multi-activities.

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[8]Ibid., p. 190.

[9]William W. Caudill, Toward Better School Design (New York: F. W. Dodge Corporation, 1954), p. 28.

Modifiable plan. A basic plan for school construction which, with minimum variation, would be acceptable to fit differences in climatic conditions, school enrollment, curricula, directional orientation of school building, and terrain of school building sites.[10]

Ramp. An inclined plane used to gain access from one elevation to another of different height. Ramps were particularly important in adapting the modifiable plans used in this study to the sites. Edmonds School District standards require ramps instead of stairs to permit easier movement of hot food carts and audio-visual carts about the building.

School site. The school site is the total school grounds. The school site includes the land on which the school building is constructed, playfields, parking areas, driveways, and all features within the property lines. The State of Washington requires five acres for an elementary school plus one acre for each one hundred students. A district may use less acreage upon state approval. Elementary sites in the Edmonds School District average approximately 9.25 acres.

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[10]State Board of Education, "A Summary of an Experiment Using a Modifiable School Plan," Experimental Research Report (Olympia, Washington: State Board of Education, 1963), p. 2.

Topography. Topography is the detailed description and analysis of the relief features or surface and configuration of a relatively small area or locality. Topography as applied in this study is generally restricted to school sites.

Building orientation. The term building orientation is used in Chapter IV of this study. The placement of the building on the site with regard to direction is referred to as building orientation. A building must be orientated to a site in order to afford the best access, salvage desirable natural landscape, provide for the most convenient installation of sewers and other utilities, allow ample area for playgrounds, and establish proper drainage.

Relocation of classroom units. The modifiable plan used in this study was made up of five separate units. Chapter IV shows how the difference in site topography necessitated the relocation of plan units to best fit the site. The relocation of the units affected only the arrangement of them, not the design or square footage within each.

Construction. The term construction is used throughout the thesis. The term as used in the thesis implies the physical development of the building.

Multi-purpose room. A large room which is adaptable for multi-school and public activities. The multi-purpose room for the modifiable plan in this study included two basketball courts divided by a movable partition, and a raised platform.

Hyperbolic paraboloid. A hyperbolic paraboloid was a mushroom-appearing structure in which the roof or shell portion was constructed as a modual 15 feet 6 inches by 15 feet 6 inches. The shell converged downward from outer edges toward the center to a vertical depth of 2 feet 0 inches. The shell was supported by an 8-inch by 8-inch reinforced concrete column. The roofs of the building units and walkways of the modifiable plan used in this study were made up of the 15-foot 6-inch by 15-foot 6-inch paraboloids. Hyperbolic paraboloids were used to form the outer perimeter of the roof for each unit. The hyperbolic paraboloids as used in this plan were both solid and perforated. The perforated type was used for decorative purposes in areas outside the building where enclosure was not necessary.

Inverted paraboloid. An inverted paraboloid was basically the same as the hyperbolic paraboloid except the shell converged upward from the edges to a vertical height of 2 feet 0 inches. The inverted paraboloid had no column, and was suspended by the adjoining edges of four hyperbolic paraboloids. The inverted paraboloid was used in the modifiable

plan as the central portion of the library and classroom roofs.

## Overview of the Remainder of the Thesis

The design for the remainder of the study includes a review of literature pertaining to school construction as presented in Chapter II. The review shows some of the findings of other similar research. Chapters III and IV contain the main body of research compiled for this study. Many meetings and conferences were held in the development of these chapters of the thesis. Participants, in addition to Professor George D. Strayer, Jr., of the University of Washington, included:

1. J. H. Hulvey, Consultant School Facilities and District Organization, State Board of Education.
2. Robert A. Bezzo and Associates, Architects, Edmonds, Washington.
3. Harold E. Silvernail, Superintendent, Edmonds School District No. 15, Snohomish County, Washington.
4. John E. Kochrian, Director of Plant Facilities, Edmonds School District No. 15, Snohomish County, Washington.
5. E. M. Allen, Assistant Superintendent in charge of Business, Edmonds School District No. 15, Snohomish County, Washington.
6. Eugene Carson, Principal, Cedar Valley Elementary School.
7. John Burbank, Principal, Meadowdale Elementary School.

8. Paul Hylton, Director of Pupil Personnel, Edmonds School District No. 15, Snohomish County, Washington.

9. Health Services Personnel, Edmonds School District No. 15, Snohomish County, Washington.

Chapter IV gives a general analysis of data representing some of the physical aspects of the project. The chapter describes some of the characteristics of the Edmonds School District to acquaint the reader with the project setting. The description of the modifiable plan used in the study is also given in this chapter. Other data presented in Chapter IV are district codes and requirements, climatic factors, acoustical and soil studies, site development, and building orientation.

Chapter IV gives cost data for the three projects in the study. The first portion of Chapter IV presents cost data for the general, mechanical, and electrical contracts for the three schools. The second portion of the chapter presents a bid summary for each project.

The final chapter, Chapter V, includes a summary, conclusions, and recommendations based on the data found. Supplementary sections include a bibliography of references used in the study and an appendix containing copies of letters, bids, and data-gathering devices used in the study.

# CHAPTER II

# REVIEW OF RELATED LITERATURE

## Introduction

A review of literature related to the different aspects of school construction and the use of stock plans or stock plan approaches for school construction was made to help establish background and direction for the study presented herein. The material includes general information concerning school construction and stock plan approaches to school construction.

Information concerning stock plan usage and experimentation was not plentiful. Much of the related material examined was available only in mimeograph form. The resources listed in the bibliography both reinforced and emphasized the material reviewed in Chapter II.

## Information Related to School Construction

The Washington State Aid Program for School Construction began in 1933. State funds were made available for financing emergency relief programs in the form of public works and work relief projects. This included school building construction. It wasn't until 1941 that the program of state aid for school construction became established by law. Legislation of that year made specific appropriations for school

building construction, and set forth the procedures by which this fund was to be administered. The lag in school building construction that occurred during the depression and war years, together with the rapid growth in school population, led to a critical school housing shortage. To meet this housing shortage, legislation in 1947 revised the program of state aid for school building construction by introducing an equalizing formula into the law. The administration and regulation of funds was placed in the hands of the Superintendent of Public Instruction and the State Board of Education. The law enacted in 1947 has served as the basis of laws controlling the allocation of state funds for cooperative financing for school buildings. Succeeding Legislatures, in providing appropriations for the School Emergency Construction Fund have made slight amendments to the basic law. The matching formula was liberalized for school districts showing a need for funds in excess of those allowable under the original formula.

Rules and regulations governing the administration of the School Emergency Building Fund have been established by the State Board of Education, and for a four-year period, by the School Emergency Construction Commission. Among these regulations were the Table of Area Designations for Elementary Schools, the adoption of a ceiling on square foot costs, and the listing of items which might be ineligible for state matching funds.

The operation of the program over the period since 1947 has resulted in a continuous program of state aid for school building construction. There were 104 elementary schools, thirty-one junior high schools, and twenty-one senior high schools built from 1952 to 1958. The following criteria were used to determine the comparative square foot costs for elementary and secondary schools: (1) general analysis, (2) analysis by the year contract was authorized, (3) analysis by construction area, and (4) analysis by pupil capacity. The general analysis showed that the overall average eligible square foot costs for junior and senior high schools were not significantly greater than the average for elementary schools. When taken by the year the construction was authorized, the average square foot costs of all schools had increased, and especially since 1954. The analysis by geographical construction area in the state showed the northwest area to have highest construction costs, while the southeast had the lowest. There was considerable variation in cost among the seven construction cost areas in the state, with the low for elementary in Vancouver at $11.59 per square foot, and a high of $13.83 in Bellingham. High school costs were correspondingly high in the northwest and Spokane areas, and low in the Vancouver area.[11]

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[11]Frederick Ernest Knoell, "An Analysis of Construction Costs for Cooperatively Financed Elementary and Secondary Schools in the State of Washington from 1952 to 1958" (unpublished Master's thesis, The University of Washington, Seattle, 1958), 79 pp.

The building plans of twenty-three high schools in the State of Washington were examined in detail by Hayes in 1954. Each high school was examined for the space allocation given to: general classrooms, science, home economics, commercial art, music, library, study hall, agriculture, shop, physical education, auditorium, state, cafeteria, administrative office, faculty room, health center, and kitchen.

Eighty-five pages of the study were devoted to an extensive review of the literature which pertained to each of the space allocations listed above.

One chapter was devoted to the available literature on studies which had been constructed on class size. Twenty-one experimental studies were reviewed in this chapter. Hayes concluded that these experiments on class size were inclusive in their findings. He indicated that there was no clear-cut difference between large or small classes. The analysis of the high school studies was comprehensive and gave detailed information on student capacity, variation in space units, allocation of area, allocation of percent of total area, space allocation compared to total storage, total administration, and unit offices.

Hayes listed recommendations for further study which he considered were needed for further clarification of

standards and data used in school building resource materials.[12]

A mimeographed publication from the office of the State Superintendent of Public Instruction for the State of Washington, dated May, 1963, pointed out some of the factors which influence school construction costs. The report stated that no really valid nor reliable method has yet been devised for comparing school building costs. The methods most widely accepted and used at present are square foot costs and per pupil costs. The Boeckh Index is used as a guide for comparisons of square foot costs and per pupil costs. The Boeckh Index is a quarterly report estimating a percentage increase or decrease for the cost of apartment houses, hotels, office buildings, and so forth. The state square foot ceiling is based on this percentage. The Boeckh Index was $13.00 per square foot in 1951, and had increased to $17.17 by 1963. The state ceiling assistance increased from $13.00 per square foot to $15.49 for the same period. It was pointed out that while square foot costs of comparable building construction had increased 31.1 percent, school construction costs had increased only 13.6 percent.

The report also pointed out trends in per pupil cost related to the Boeckh Index. During the period from

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[12]Ernest Hayes, "Study of the Problems of Space Allocation in New High School Buildings to Meet the Needs of the Various Departments" (unpublished Doctoral thesis, The University of Washington, Seattle, 1954), 304 pp.

July, 1961, to December, 1962, twenty-seven elementary schools were constructed in the state. The cost in construction of these schools totaled $12,062,612.37, and housed 11,658 pupils. The average per pupil cost during this period was $1,034.71. Comparable construction cost during this period, based on the Boeckh Index, would have been equivalent to $1,442.81 per pupil. The Boeckh Index indicated that from July, 1951, to December, 1962, construction costs rose from $1,125.00 to $1,442.81 per pupil for an increase of 28.2 percent. During this same period, elementary school construction costs dropped from $1,125.00 to $1,034.71, or a decrease in per pupil costs of 8.0 percent.

The report listed various factors which effect school building cost. These factors were broken down into four general areas: (1) the site, (2) construction costs, (3) architectural services rendered, and (4) method of funding. Some of the factors effecting school construction costs listed under sites were:

1. The type of bearings and footings needed.
2. The amount of grading necessary to fit the site to the building.
3. The location of utility lines.
4. The amount of driveway and parking areas.
5. Climate and weather factors.

Some factors mentioned, which could affect construction costs were:

1. Travel costs related to the location of the job.

2. Cubage (utilizing all possible overhead space).

3. Building codes. Code revisions, or varying local codes, may cause increase cost.

4. Materials used for construction.

5. Change orders.

6. Modular and repetitive design.

7. Design of the building. Construction costs may be reduced, for example, when building parts serve more than one purpose.

8. Time of bidding.

It was further pointed out in the report, that although the State of Washington has adopted a limit of six percent for architectural services for new construction, the purchase of additional services in the form of acoustical engineering may increase costs. Bonding (or borrowing) is a main source of local school building funds. Repayment of these funds is almost always spread over a number of years with the inclusion of interest payments. The interest payments become a part of the total costs, but are not readily reflected in a per pupil or square foot analysis.[13]

The American School Board Journal of April, 1964, contained an article entitled "Proper Planning of Sites Can Cut Costs." The article stressed the importance of planning the building orientation on a site to insure minimum maintenance

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[13]State of Washington, Superintendent of Public Instruction, "School Construction Costs" (Olympia, Washington: Superintendent of Public Instruction, May, 1963), (Mimeographed.)

cost for the future. Some of the considerations suggested were related to entrance roads, service roads, parking areas, play areas, athletic fields, bus loading, pedestrian walks, and plantings.[14]

A special publication presented seventy-seven pages of examples of good and bad school plants in the United States as revealed by a school facilities survey in 1952. The Eighty-first Congress authorized this nation-wide survey to determine the public school facilities needs through 1960. The illustrations used in the publication represented all sections of the nation and revealed many contrasting examples of school facilities.

> The ability of children and young people to grow and become effective American citizens is determined in a large measure by their educational advantages. They make better progress in school houses which are planned, designed, and constructed to suit the needs of the pupils and the program.[15]

Some of the conditions which make a good school plant were listed as: (1) construction and educational adequacy for at least twenty years, (2) acceptable fire and safety standards, (3) adequate space and flexibility, (4) well-developed play fields for outdoor activities, and (5) adequate lighting,

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[14]"Proper Planning of Sites Can Cut Costs," The American School Board Journal, 148:54, April, 1964.

[15]United States Department of Health, Education, and Welfare, Office of Education, School Housing Section, Good and Bad School Plants in the United States as Revealed by School Facilities Survey (Washington, D. C.: United States Department of Health, Education, and Welfare, 1954), p. 2.

heating, ventilation, and sewerage facilities for a minimum of twenty years.

Poor school plants were identified as those which lack the possibility of correcting defects involving safety, location, space, and adaptability to the educational program.[16]

The American School and University of October, 1963, reveals how the city of Baltimore tried to solve its school needs by adopting stock plans to expedite new construction. The attempt met with failure because: (1) plans did not fit particular situations, (2) plans did not adapt to new advances in education and building technology, and (3) costs did not remain static enough to warrant using the stock plans economically.

New York, in a similar attempt, has spent three years in drafting nine standard plans for the construction of new schools. Cost estimates for the proposed plans ranged from $543,000 to $2,100,000. Information on the evaluation of the plans was not available for this report.[17]

In Palo Alto, California, Oconomowoc, Wisconsin, and Little Rock, Arkansas, something has been done about flexibility and compatibility in school construction. Some of the highlights of the projects in these school districts were:

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[16] Ibid., pp. 1-76.

[17] "New York Stock Plans," American School and University, 36:59, October, 1963.

Palo Alto, California: Two hundred fifty-seven thousand dollars was granted by the Ford Foundation's Educational Facilities Laboratories to establish the SCSD (School Construction Systems Developments) project at Stanford University. The establishment of this project was an attempt to gain some of the advantages of the "stock plan" idea without the disadvantages of inflexibility which had been a problem of stock plans. The theory behind this project was to develop building components that could be bid for a number of school districts without dictating building design or hampering flexibility. Some of the implications which SCSD pointed to at this time were savings in cost and time, more flexibility and compatibility, easier maintenance and replacement, and the improvement of communications among the manufacturers.

Oconomowoc, Wisconsin: The public schools of Oconomowoc, Wisconsin, designed flexibility into the Summit Elementary School by a series of movable acoustical wall partitions. The planning and arrangement of the partitions was done to provide immediate access to the library, special conference room, and audio-visual equipment. Flexibility in communications was provided through a multi-channeled intercom system between the conference room, the library, and the team room. The school district felt that this arrangement provided the variety of situations and spaces necessary for effective learning.

Little Rock, Arkansas: To keep up with the changing needs of education, the Little Rock schools developed a "characteristic system." This system was used to measure each subject of the presently required program and to assign it, with appropriate spaces, to a larger unit containing all the educational disciplines with the common spatial characteristics or requirements. This was a system of flexibility based upon the character of the space required by three general categories of educational subjects. These were the Academic Teaching Space, the Special Teaching Space, and the Common Space.[18]

The Academic Teaching Space included such subjects as mathematics, social studies, and language. The Special Teaching Space provided for chorus, band, and industrial arts. The Common Space included the library, cafeteria, physical education facilities, and so forth. The plan for the Henderson Junior High School was designed on this basis. The Little Rock School District is confident that the design of this school will adapt to future changes in length of program, variety of program, and staffing by rearrangement of building space.[19]

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[18]"Designs for Flexibility and Compatability," American School and University, 37:40, September, 1964.

[19]Ibid., pp. 32-42.

The State of Washington has been concerned for many years as to whether the use of stock school plans would affect economies without impairing the usefulness of school buildings. Senate Bill No. 392 was introduced in 1959, and defeated on the Senate floor by a close vote. The State Board of Education then authorized an experimental study to test the provisions of Senate Bill No. 392. This study was designed to include the major elements proposed in the bill.

Briefly, the major proposals of the bill were that the State Board of Education would appoint a director of the building facilities division. The director, with the assistance of the University of Washington College of Architecture and Urban Planning and other technical and professional assistance, would prepare stock plans for school construction which would be adapted to fit differences in climatic conditions of the state, school enrollment, curricula, directional orientation of school buildings, and the terrain of school building sites. Senate Bill No. 392 stipulated that as few plans as possible be prepared, and that school districts providing less than fifty percent of the construction cost be required to use the modifiable plan. The plans were to allow for new industrial techniques, and a variety of exterior appearances. Other highlights of the bill were that the local board could employ the architects of their choice to alter the plan, and that an approval board would be set up to review the stock plans at least once a year and to incorporate new advances.

The Ephrata Junior High School was selected since it was designed to accommodate a medium-sized enrollment, and represented climatological conditions and characteristics of Eastern Washington. The Edmonds School District was invited to participate in the study in 1961, because it was interested in constructing a junior high school to accommodate a larger enrollment, the climatological conditions were characteristic of Western Washington, school site conditions contrasted those of the Ephrata area, it was in a different earthquake zone, and because of the Edmonds experience in junior high school planning and construction.

The Edmonds project was bid in 1962 as basic plan "A" and basic plan "B." Basic plan A conformed to the Ephrata plan in details and materials as closely as possible, still satisfying code and district requirements. Basic plan B was modified in the areas of materials, structure, mechanics, and electrical wiring and lighting based on recommendations by the architect in the best interests of economy. Plan B was changed almost completely from the Ephrata plan with the exception of modual placement, and general appearance. When the bids were tabulated, basic plan A was bid at $1,267,624.60. The basic plan B was bid at $1,151,574.60. This meant that basic plan A would have cost the Edmonds School District $116,050.00 more than the modified plan B. There was question as to the accuracy of the accepted bid on plan B as the contractor lost approximately $80,000.00 on the project.

The provisions in Senate Bill No. 392 were carried out in this study. Several factors emerged during the study which were not specified in the bill. These factors were earthquake resistance, code and ordinances, and school district requirements. It was assumed in this study that both schools were adequate and useful as designed since they were approved and accepted by the school boards and administrative staffs.[20]

In May of 1956, the State Superintendent of Public Instruction for the State of Washington prepared a report on stock plans in accordance with a request from the State Board of Education and the School Emergency Construction Commission. The report contained a summary of a survey made in 1951 to determine the experience and practice in the use of stock plans across the nation. The survey was documented with copies of excerpts from letters and telegrams from the various states concerning their experience in the use of stock plans. The survey indicated that forty states were not using any type of stock plans at that time. The survey also indicated that eight states using stock plans were using plans for small school buildings only. Three of the eight states were using stock plans for one room schools only. Five states of the eight were using stock plans which neither exceeded four

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[20]State Board of Education, "A Summary of an Experiment Using a Modifiable School Plan," Experimental Research Report (Olympia, Washington: State Board of Education, 1963), pp. 1-30.

classrooms nor cost more than $15,000. The report indicated that fifteen of the states surveyed did use stock plans at one time, but eventually abandoned the program for the following reasons: (1) varying site conditions, (2) plans became obsolete and impractical, (3) need for architectural supervision, and (4) to allow local initiative. Many examples of how stock plans were developed and became obsolete and impractical were given. An example of this appeared in The Evening Star, Washington, D. C., of Tuesday, January 6, 1953. The article reported that Virginia prepared two sets of school plans costing $40,000 and placed them on file. The plans remained on file and were never used. The article explained that some of the reasons were: (1) the plans were designed for flat sites, (2) most localities wanted their own architecture, and (3) a one percent fee was involved for use of the plans. State officials had been directed to make eleven plans altogether, but were not doing so as long as the two other plans gathered dust.

The California legislature has studied the various possible economies in school construction. Much consideration had been given to the area of stock plans. The legislature rejected stock plan proposals as not being sound or economical based on available data. The California experience pointed out some of the advantages of individual planning. Some of the advantages mentioned were: (1) a reduction in the number of change orders required during construction, (2) the

possibilities of reducing square footage by better planning, (3) cost reduction through the use of new materials, and (4) the incorporation of new developments in heating, ventilating systems and other new developments into the school buildings.

The report attempted to answer the question asked by laymen as to why stock plans do not work. It stated that the answer lies in the many differences in school plants and localities. It was pointed out that no stock plan can be used without modification. The report also mentioned that no common ratio of square footage allotted to classrooms and special areas exists among schools, and that fifty-five percent or less of the total space is devoted to actual classrooms. Varying curricula, building codes, weather conditions, geographic conditions, maintenance requirements, and availability of utilities were all mentioned as factors which create the need for plan modification. The report further suggested that no proof of economy has yet been achieved through the use of stock plans.

It was pointed out in the report that stock plans do not eliminate the cost of some preliminary planning, research, supervision, and inspection. It stated that even in individual planning, many stock details which have been used in the past successfully are repeated where feasible. The report

explained that the major portions of the private architect's fee covers engineering fees, drafting costs, and overhead.[21]

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[21]State of Washington, Superintendent of Public Instruction, "Stock Plans Report" (Olympia, Washington: State Superintendent of Public Instruction, 1956), pp. 1-34. (Mimeographed.)

# CHAPTER III

## GENERAL ANALYSIS OF DATA

This chapter presents a general description of the district and plan used in the study. District codes and requirements, along with climatic factors, are also given. A portion of the chapter deals with site development. The sites are described in terms of size, topography, and so forth. Illustrations such as overlays of the building plans are used to show the directional orientation of the buildings on the site and differences in redesign. Other data such as how the relocation of the units effected the building square footage and acoustical and soil analyses pertaining to this study are also discussed.

### General Description of the Edmonds School District

Edmonds School District, Snohomish County, Washington, encompassed an area of approximately thirty-seven square miles. The school district lay about mid-way between Seattle and Everett, Washington. The Snohomish-King County line formed the southern boundary, and the coast line of Puget Sound served as the western boundary. Three incorporated cities were located within the school district. These cities were Edmonds, Lynnwood, and Mountlake Terrace. Other communities within the district were Woodway, Alderwood Manor,

Halls Lake, Seattle Heights, and Meadowdale. The Edmonds School District encompassed one of the most rapidly growing residential areas in the Seattle-Everett metropolitan area. The district constituted 1.7 percent of the Snohomish County area and represented approximately twenty-nine percent of the total assessed valuation. The entire area of South Snohomish County was one of scenic beauty with hills and valleys of native trees, lowland lakes, and the inland waters of Puget Sound. Economic growth of the area was essentially residential development which was a result of the region's suburbanization process. The economy was supported by various commercial establishments, modern shopping centers, light manufacturing enterprises, and civic construction. Transportation and tourism also contributed to the economy of the area. Excellent highway networks, the Great Northern Railway, motor freight lines, Greyhound bus lines, and the Washington State Toll Bridge Authority ferry system with a terminal at Edmonds provided ready access to the metropolitan centers of the area and the Pacific Northwest. U. S. Highway 99 which ran north and south, divided the district in half. (See Figure 1.) The Everett-Seattle-Tacoma freeway presently under construction, paralleled the existing highway, and was part of the Interstate Highway System running north-south from Washington State to the Canadian border. Planned interchanges with city arterials held promise of continued growth and development of the area. Utilities were readily available.

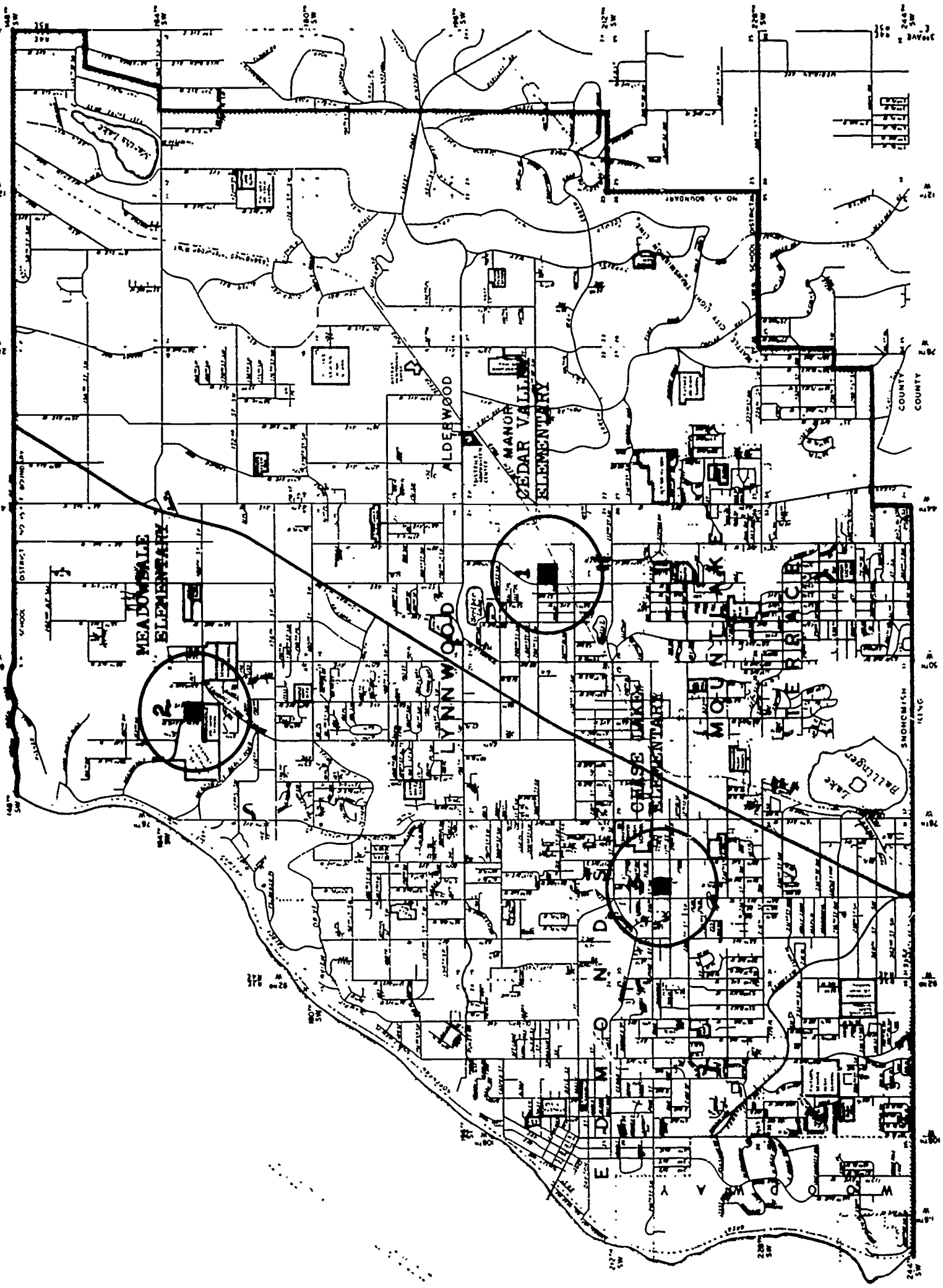


FIGURE 1

EDMONDS SCHOOL DISTRICT NO. 15
SNOHOMISH COUNTY, WASHINGTON

Electrical service was provided by the Public Utility District No. 1 of Snohomish County. Telephone service was supplied by the West Coast Telephone Company. Natural gas was made available by the Washington Natural Gas Company. The major supply of domestic water for the area was furnished by the Alderwood Water District.

Most of the population increase in Snohomish County had been concentrated in the southwest part within the Edmonds School District. The 1964 population within the school district had been estimated at 80,000.

The growth of the South Snohomish County area was reflected in the Edmonds School District which ranked as the fifth largest school district in the State of Washington in terms of enrollment. Although the school district's boundaries had remained fairly constant over the years, growth within the boundaries had changed considerably. In 1947 school facilities in the Edmonds School District consisted of three elementary schools and one high school. School facilities for the 1964-65 school year included twenty-three elementary schools, five junior high schools, and three senior high schools, making a total of thirty-one buildings. School district facilities also included an administration center, a warehouse, maintenance shop, and a transportation center housing one of the largest school transportation systems in the nation. The school population for the 1964-65 school year was over 22,000. A professional staff of over 880 certificated

employees was contracted to serve grades kindergarten through twelve. The total number employed by the school district including custodial and secretarial personnel was over 1,400.[22]

## General Description of the Modifiable Plan

The plan used in this particular study was single story with concrete roof and floor. The walls were comprised of stucco marblecrete, steel studs, pumice block and concrete. Building capacity was six hundred pupils (K-6). The plan was made up of three units housing twenty rooms; one administrative unit containing a library, faculty room, office, and storage; and a fifth unit containing a double multi-purpose room with divider curtain and raised platform.

The roofing specification for the plan called for concrete thin shell hyperbolic and inverted paraboloids. (See Appendix A, page 111.) All windows were aluminum sash. Skylights provided secondary natural lighting. Drapes and shades were specified for the windows.

The interior finish included the following:

1. Classrooms. The walls were plaster board and cedar with flat paint and stain. Ceilings were finished with acoustical plaster. All millwork was finished with enamel paint.

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[22] Sale of $1,500,000 General Obligation Bonds, Series A for Edmonds School District 15, Snohomish County, Washington. A Pamphlet Prepared by Marshall and Meyer, Incorporated (Seattle, Washington: July 1, 1964).

2. Entries. The walls were finished with V.G. fir and stain. The ceilings were finished with acoustical plaster. All millwork except inside doors was finished with enamel paint. The inside doors were a natural finish.

3. Toilet rooms. Ceramic tile was used for wainscots. The ceilings were furred plaster board with enamel paint.

4. Library. The walls were plaster board with flat paint. Acoustical plaster with enamel paint was the finish used for the ceiling.

5. Multi-purpose rooms. Concrete tilt-up walls were finished with enamel. Acoustical plaster and applied acoustical panels were used to finish the ceiling and concrete walls.

The floor covering used in the general classrooms, corrridors, library, and multi-purpose room was vinyl asbestos tile. Ceramic tile was specified as the floor covering for the general toilet rooms.

The acoustical treatment for all classrooms and library ceilings was acoustical plaster. Acoustical plaster was used for the multi-purpose area and platform ceilings. Applied acoustical panels were used for the multi-purpose walls.

The scope of heating and ventilating mechanical systems was central hot water-oil fired boiler supplying hot water to heat and vent units in each building. Heating and ventilating units supplied rooms with mixed fresh and returned air. Rooms were individually controlled by face and by pass dampers. Heating piping was distributed in pipe tunnels under floors. The heating system used was automatic firing, and the fuel used was PS-400 oil. The heating system contained no provision for expansion. The ventilating system provided an

exhaust in the kitchen and toilet rooms. A supply and exhaust were provided in the multi-purpose room.

Sewage disposal was handled through city sewers, although when the plan was first completed at the Cedar Valley Elementary School it was necessary to install a septic tank and drain fields as sewer service was not available at the time. Culverts and drywells were used for the disposal of rain water. The local Alderwood Water District served as the source of water supply. Hydrants and extinguishers were provided for fire protection. The Western Uniform Building Code was followed in the plumbing system. No provision for expansion was provided.

The electrical systems included underground service. The type of raceway was rigid conduit and electrical metallic tubing. A circuit breaker was located in the boiler room as the main point of distribution. A provision for expansion was provided in the electrical systems. The lighting system used in the classrooms, offices, and library was fluorescent.

The modifiable plan used in this study was a "Class A" type building. An outside door from each classroom, a fire alarm system, and fire extinguishers in strategic locations provided for fire patrol for pupil safety.[23] (See Appendix A, page 111.)

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[23]Information for the above was taken from State Forms B-5 on file in the Edmonds School District 15 Business Office.

## District Requirements and Codes

The modifiable plan used in this study complied with the Uniform Building Code and the local code requirements for the cities of Lynnwood and Edmonds, Washington.

The three plans included many requirements which were typical of all elementary schools in the Edmonds, Washington School District. Some of these requirements are included below.

The typical elementary school in the Edmonds School District housed twenty classrooms with ten designed as primary classrooms, and ten as intermediate. Each classroom contained approximately 961 square feet. Classrooms were clustered around a foyer area which was used for food service and other activities. The specifications for cabinet work within the classroom included: (1) a teacher cabinet with two legal file drawers and adjustable shelves, (2) a student wardrobe, and (3) sink, supply, and paper storage cabinets.

One of the newer district standards was a double-sized multi-purpose room. The extra station was in lieu of outdoor play sheds. The multi-purpose room included two basketball courts divided by a folding partition. A raised platform with built-in risers and a chair storage room were other standard features.

The library in each elementary school served as the center of instruction for the building. Some of the basic features found in the typical elementary school library were:

1. The main reading room which included a display cabinet with book drop, a library check-out desk, both a portable and a stationary magazine cabinet, and approximately 500 lineal feet of adjustable library shelving.

2. Two conference rooms which were separated by the folding partition and could be opened to form one large conference room, thereby providing greater flexibility.

3. An audio-visual storage room located near the library operation to promote better usage of audio-visual equipment and materials.

4. A room for administering the district testing program, and so forth.

5. Easy access to the textbook storage room.

Other standard features within the administrative area included: (1) the principal's office, (2) office reception area, (3) the office workroom and storage, (4) the health room, and (5) the teachers' room.

## Climatic Factors of the Edmonds School District

Local climatic and earthquake factors influenced building design and specifications. The report by the State Board of Education in January of 1963, involving an experiment in the use of a modifiable school plan for junior high school in the Edmonds, Washington School District, included climatic and earthquake statistics for the general Everett area. The statistics in the report were derived from a climatological summary prepared by the United States Department of Commerce Weather Bureau, in cooperation with the Everett Chamber of Commerce, for the period from 1926 to 1958.

Climatic data included in the report which were pertinent to this study were:

1. Temperature data. The daily minimum temperature for January in the Everett area was reported as 32.0, and the daily maximum in the area was 42.2. The daily minimum for September was reported as 48.4, and the daily maximum as 67.5. The experienced low was recorded in 1950, at 01.0.

2. Rainfall data. The rainfall data as reported, showed a mean rainfall over a thirty-year period of 34.5 inches for the Everett area. The greatest rainfall as reported occurred in the months of November, December, and January with an average amount of 4.50 inches. The mean for snowfall and sleet in the Everett area was 10.6 inches.

3. Sun, glare, wind, and dust factors. These were reported as not being significant factors in the Everett area due to the amount of rainfall.

4. Earthquake resistance data. The report indicated that the Edmonds School District is located in earthquake zone 3. It was stated in the report, that to meet earthquake factors, twelve-inch sheer walls were required.[24]

## Site Development

The site descriptions for the schools used in this study were recorded in Snohomish County, Washington. Cedar Valley was recorded as tract 2, volume 8, page 26. Meadowdale Elementary was recorded as tract 109, Meadowdale Beach, volume 5, page 38. Chase Lake Elementary School was recorded

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[24]State Board of Education, "A Summary of an Experiment Using a Modifiable School Plan," Experimental Research Report (Olympia, Washington: State Board of Education, 1963), pp. 13-22.

in volumes 10, 14, and 18, pages 6, 90, and 39. The sites for the modifiable plan were comparable in size. Overall site dimensions for Cedar Valley were 619.33 feet on the north, 618.59 feet on the south, 602.65 feet on the east, and 602.37 feet on the west. The Meadowdale site dimensions were 677.38 feet on the north, 673.55 feet on the south, 645.38 feet on the east, and 592.60 feet on the west. Both the Cedar Valley and Meadowdale sites were rectangular in shape. The Chase Lake site was irregular and roughly "T" shaped. The overall dimensions of this site were approximately 580 feet by 600 feet.

While the general relief within the sites was comparable, access for ingress and egress up to the buildings affected the directional orientation and location of the units of the plan. Relief within the Cedar Valley site was approximately 35 feet generally sloping toward the northeast corner of the property. The southern area of the site was wooded. The Meadowdale site generally sloped from the north and west toward the south and east. Relief within the site was approximately 20 feet. The north and west boundaries of the Meadowdale property were wooded. Relief within the Chase Lake site was approximately 10 feet and generally more level than Cedar Valley and Meadowdale. Growth and obstructions on or near the Chase Lake site included several small homes and a small grove of evergreens. (See Figures 2, 3, and 4; also Appendix A, page 115.)

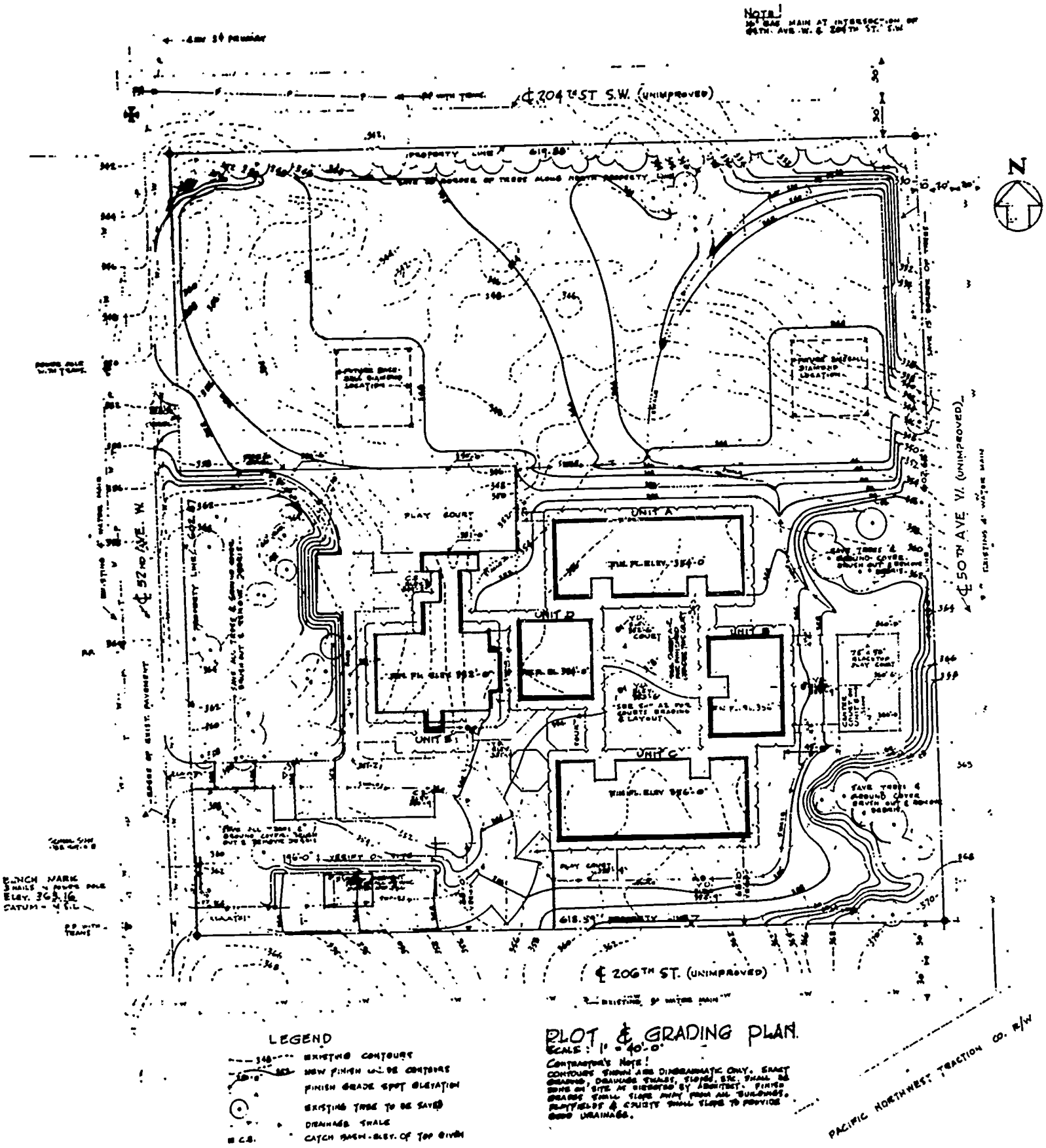


FIGURE 2

PLOT AND GRADING PLAN CEDAR VALLEY ELEMENTARY SCHOOL

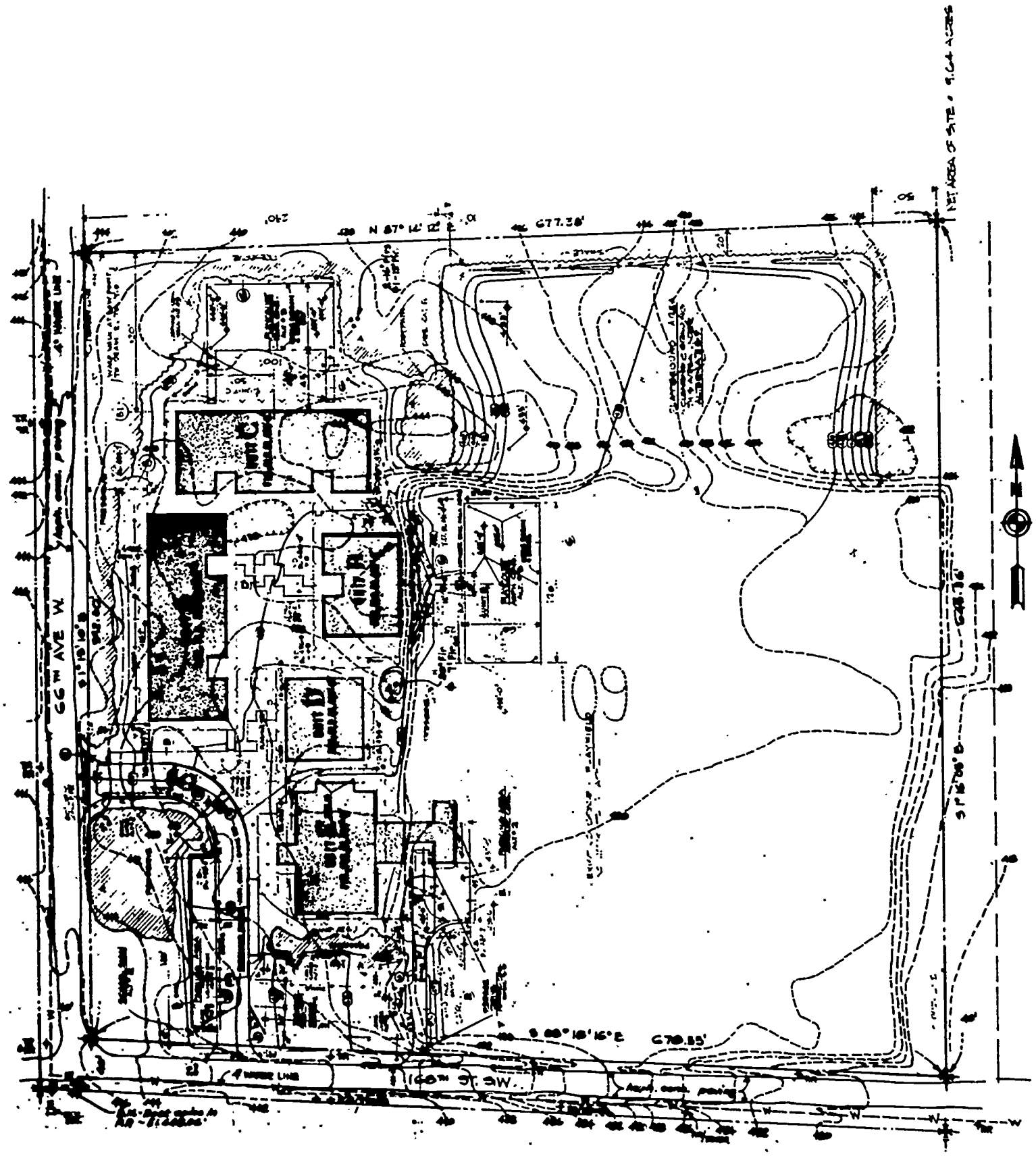


FIGURE 3

PLOT AND GRADING PLAN MEADOWDALE ELEMENTARY SCHOOL

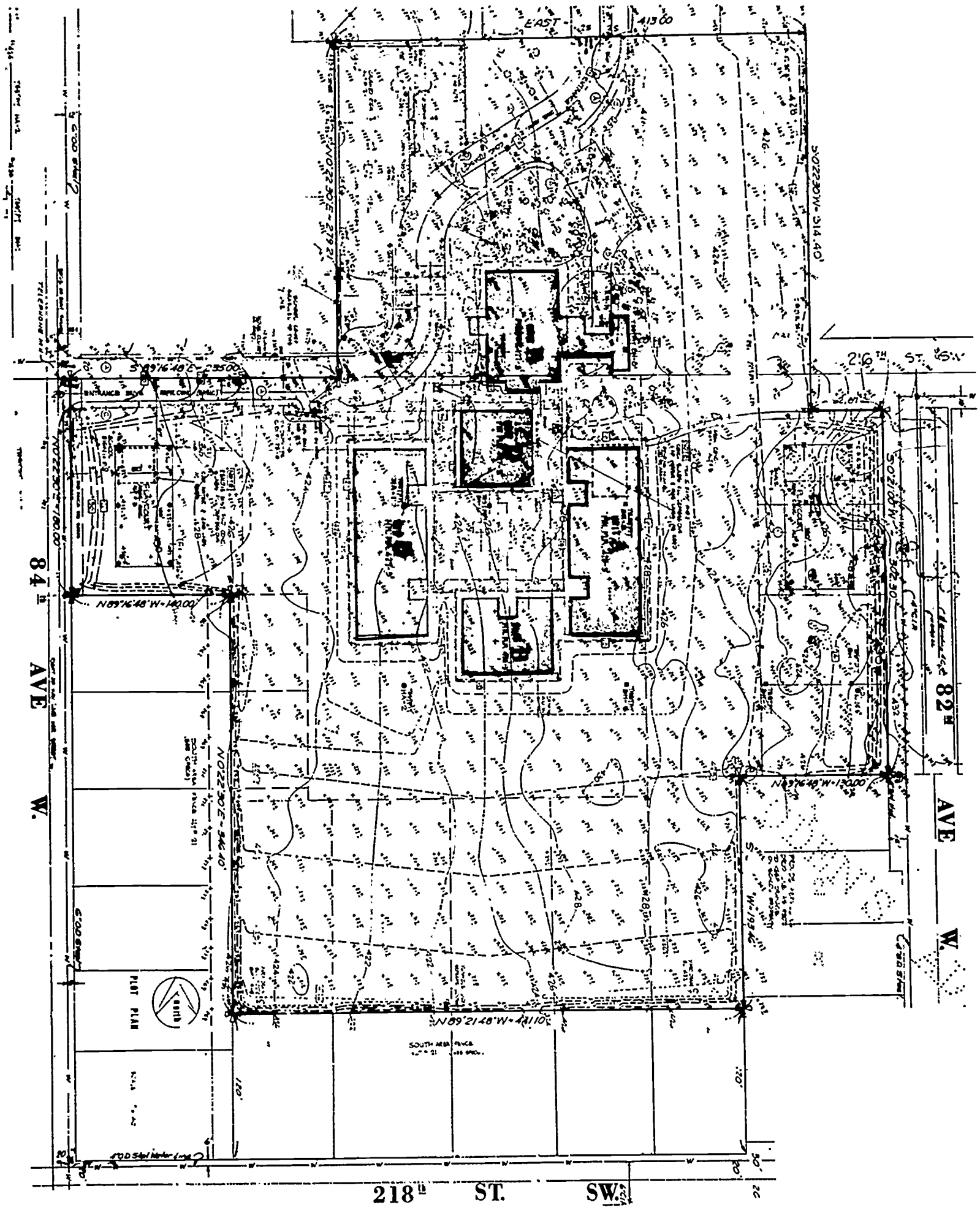


FIGURE 4

PLOT AND GRADING PLAN CHASE LAKE ELEMENTARY SCHOOL

Utilities and access roads to the sites were quite comparable. Electrical service was available to all three sites through Snohomish County Public Utility District No. 1. Water service was available through the Alderwood Water District. Washington Natural Gas service was available to both the Cedar Valley and Chase Lake sites. Sewer service was not available to Cedar Valley at the time of construction, making it necessary to install septic tanks and drain fields. Sewer service did become available to the Cedar Valley School at a later date, however, and the conversion was made then. Meadowdale Elementary School was able to obtain sewer service through the Lynnwood sewer district, as was Cedar Valley. The city of Edmonds sewer district was available to the Chase Lake site. Telephone service was available to all three locations through the West Coast Telephone Company. Roads surfaced with asphalt were available to all three sites. The south and west boundaries of the Meadowdale site were bordered by 168th Street Southwest and 66th Avenue West. Access to the Chase Lake Elementary School was gained from 84th Avenue West on the west boundary of the school site.[25] (See Figures 2, 3, and 4.)

Extensive soil studies were not made on the Cedar Valley and Meadowdale sites. The consulting firm of

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[25]Above information taken from data and school plans on file in the Edmonds School District No. 15 Business Office, 1964.

Neil H. Twelker and Associates was contracted to make a study of the soil conditions on the Chase Lake site. The soil report revealed that a small stream had formerly traversed the site from north to south near the east margin of the property. (See Figure 5.) Drainage from the site had been blocked by the construction of roads and homes. Various soil units were found on the site. These units consisted of: (1) a thin layer of one to three feet of silt overlay, (2) a dense compact glacial till extending to unknown depths, and (3) artificial fills along the east margin of the property. These fills were not within the actual construction area, however. The report indicated that glacial till was considered to be non-water bearing. Twelker and Associates recommended that: (1) all structures could be founded at a shallow depth within the glacial till unit, (2) that footings should not have wiedths of less than fourteen inches. It was also recommended that site preparation begin with the restoration of the surface drainage to the entire site. Grading of the site was to take place in the pebbly silt and in the upper layers of the glacial till, since these materials are readily compacted under favorable weather. The report stated that there were no foreseen difficulties in placing the building foundations on undisturbed glacial till.[26]

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[26]Neil H. Twelker and Associates, Consulting Soils Engineers, Soil Report (Seattle, Washington: March 13, 1964).

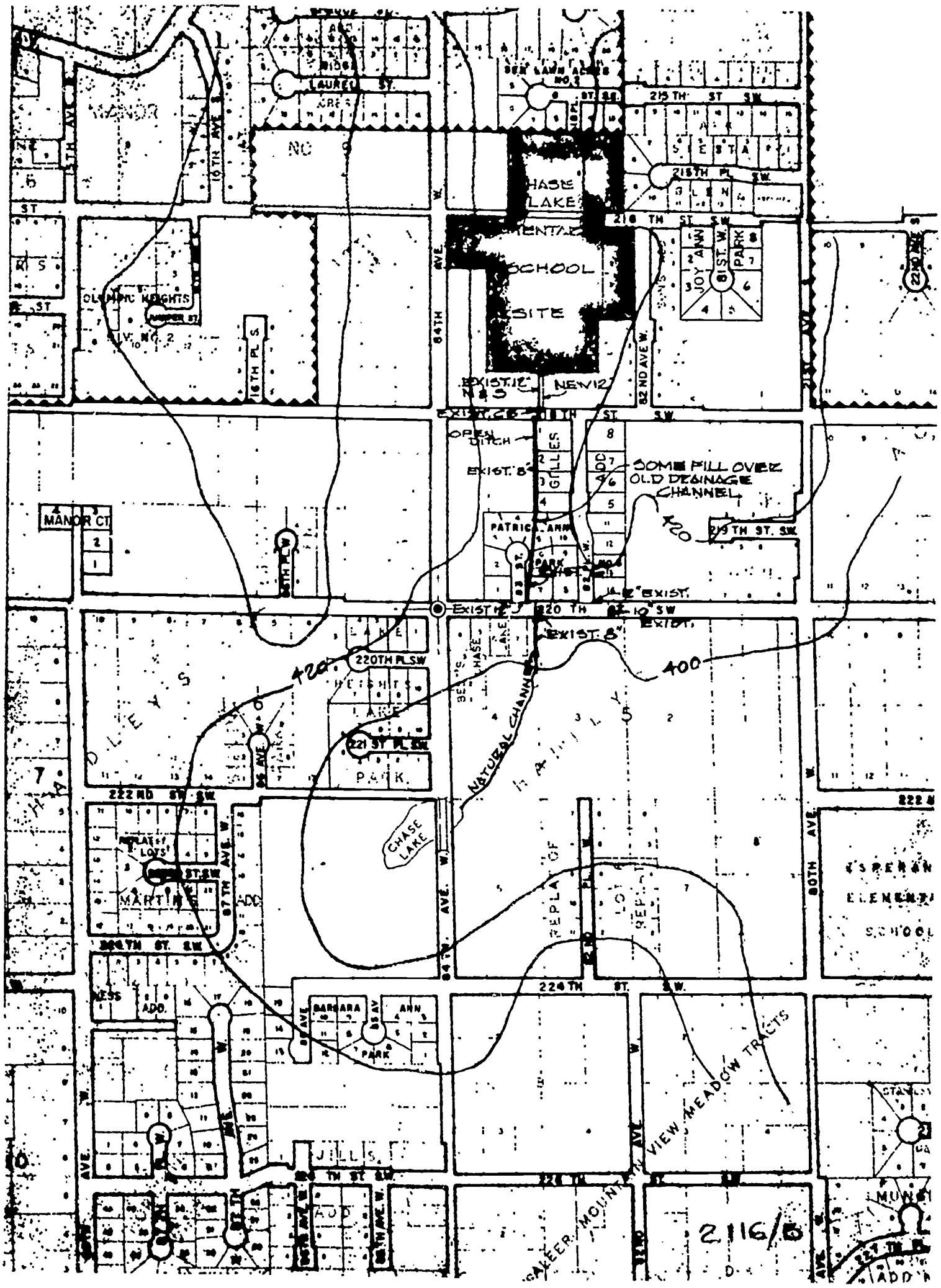


FIGURE 5

NATURAL DRAINAGE CHASE
LAKE SCHOOL SITE

## Directional Orientation of Buildings on the Site

It was impossible to orientate the three buildings on the sites in the same manner, because access and the area within the site best suited for construction varied considerably. (See Appendix A, page 115.)

The illustrations shown on the following pages in overlay form should help to better visualize the directional orientation of the three buildings on the site. The five units of the plan used in this study are labeled A, B, C, D, and E for identification purposes. Unit A contained eight classrooms. Unit B contained four classrooms; two primary and two intermediate. Unit C contained eight classes. The administrative unit containing the office, library, health center, and storage is identified as unit D. Unit E contained the multi-purpose room and kitchen.

Access to the Cedar Valley School was gained from 52nd Avenue West which bordered the west side of the school site. Figure 6 shows the relationship of the five units to one another on the Cedar Valley site. Entrance was gained from the west toward the southeast. Unit E was toward the northwest as one entered the site. Unit D was to the immediate east of unit E. The intermediate unit, which was unit A, was located on the north. Unit C, the primary unit, was located directly south of unit A. Unit B was located between units A and C toward the east.

Entrance to the Meadowdale Elementary School was gained from the southwest corner of the site on access road 168th Street Southwest and 66th Avenue West. (See Figure 7.) As one entered the Meadowdale site from the south, unit E was located immediately east with the entrance facing west. Unit D was directly north of unit E. Unit A was located on the west of the site with the length of the unit being north and south. Unit C, the intermediate unit, was located toward the north forming an "L" with unit A. Unit B was located to the east of unit A, and between units C and D.

Figure 8 shows access to the Chase Lake School from the west on 84th Avenue West. The multi-purpose room, unit E, was located directly east with the entrance to the building facing west. Unit D was located to the immediate south of unit E. The intermediate unit, unit A, was located east of unit D with the length of the building being north and south. Unit C was parallel and west of unit A. Unit B lay between units A and C to the south.

## Differences in Redesign of the Plan

The site was the key in relocation of units of the plan used in this study. Two factors related to site which were most influential in the relocation were: (1) ingress and egress, and (2) elevation of contours. (See Appendix A, page 115.)

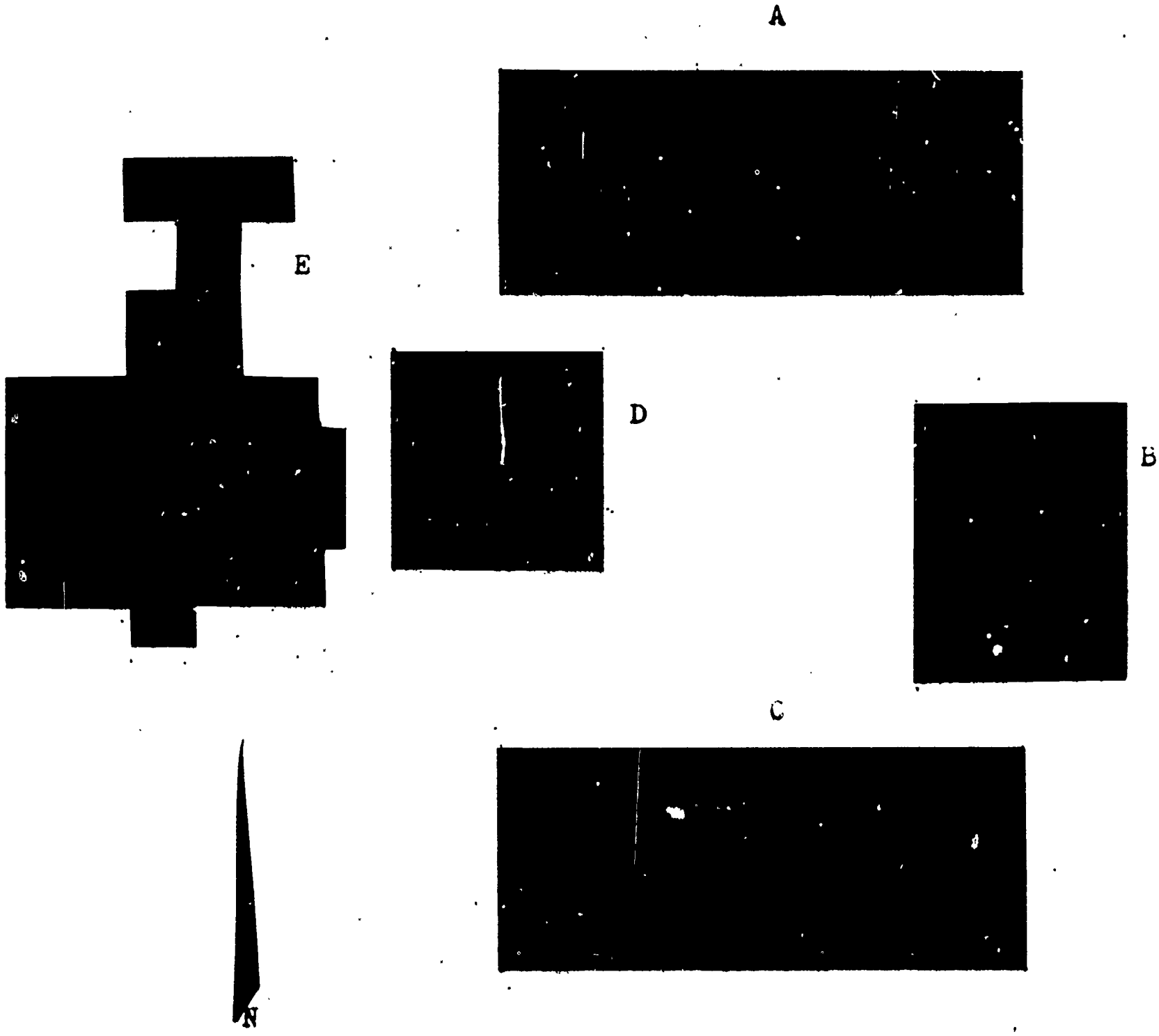


FIGURE 6

DIRECTIONAL ORIENTATION OF
CEDAR VALLEY ELEMENTARY
SCHOOL

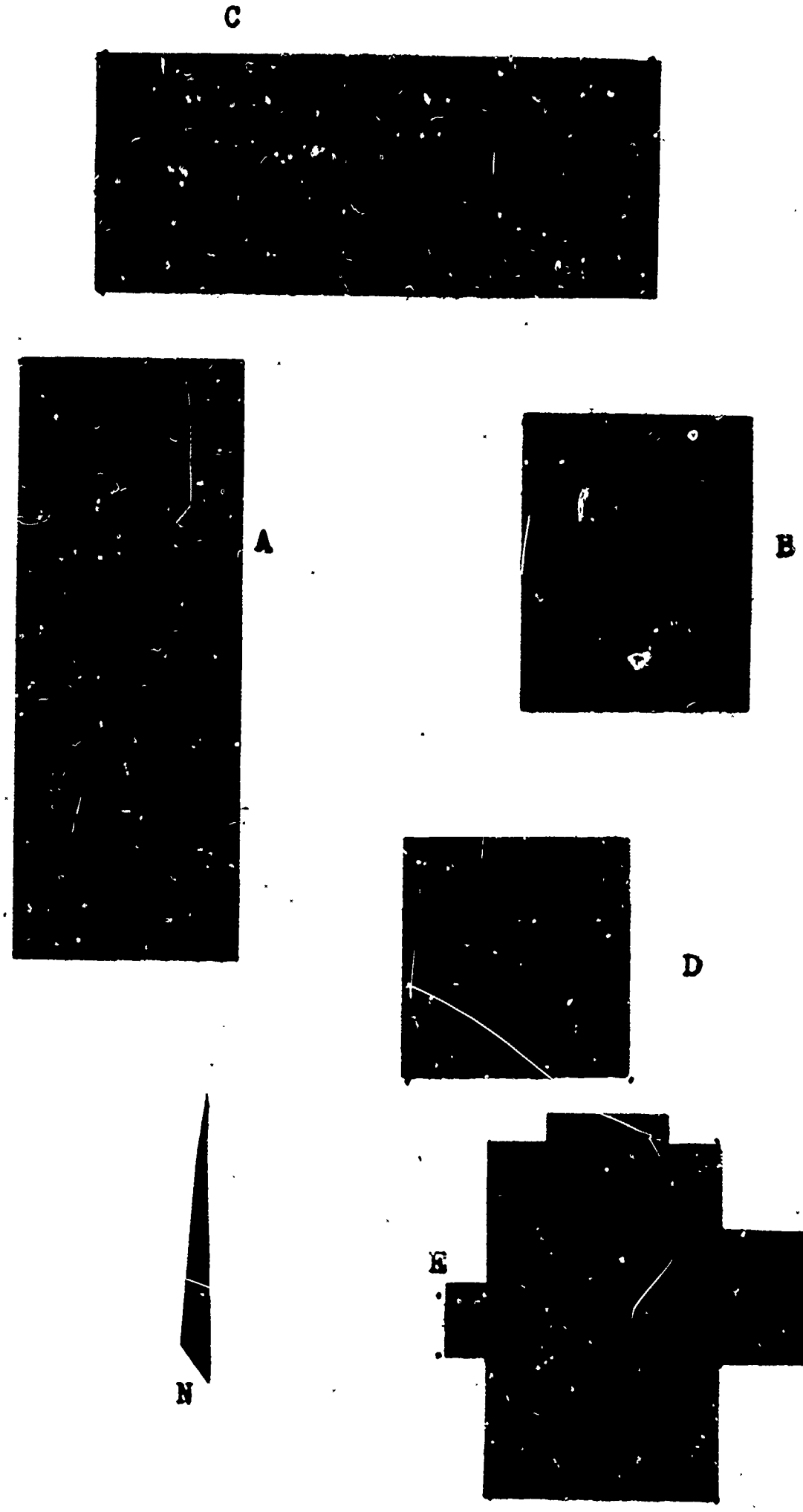


FIGURE 7

DIRECTIONAL ORIENTATION OF MEADOWDALE ELEMENTARY SCHOOL

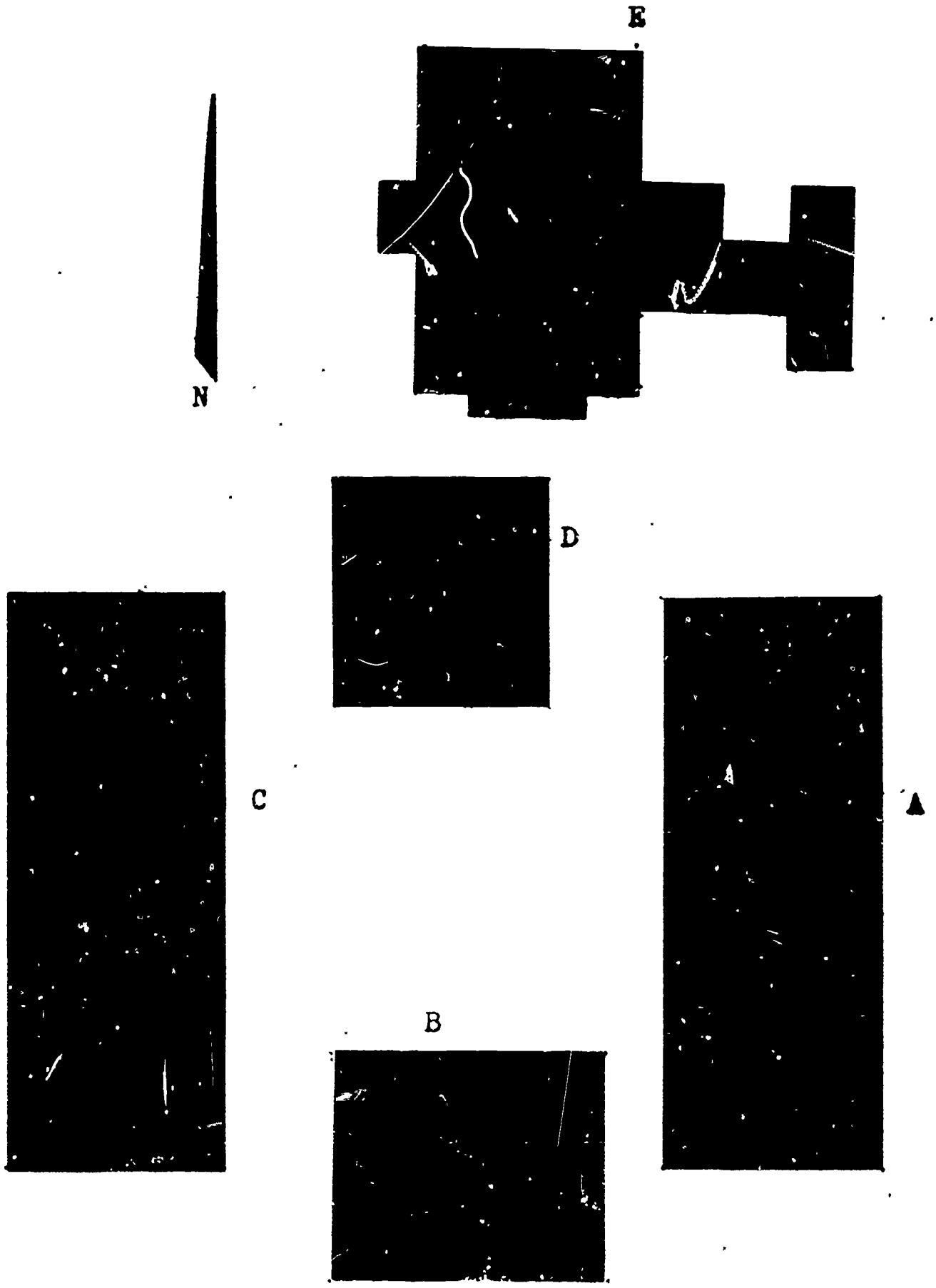


FIGURE 3

DIRECTIONAL ORIENTATION OF CHASE LAKE ELEMENTARY SCHOOL

Figure 9 shows the original relationship of units A, B, C, D, and E to one another as established on the original plan for Cedar Valley Elementary School. The study of Figure 10 shows how the entrance to the site effected the placement of units at Meadowdale Elementary School. Unit E, the multi-purpose room, was reversed on the Meadowdale plan and on the opposite side of the driveway with respect to the Cedar Valley plan. The primary unit, C, and the intermediate unit, A, were parallel and opposite to one another on the basic Cedar Valley plan, whereas units A and C were at right angles to each other on the Meadowdale plan. Unit B on the Cedar Valley plan lay between units A and C, and toward the east. Unit B on the Meadowdale plan was parallel to unit A, and to the south of unit C. Figure 11 shows that the basic difference in arrangement of units between the Cedar Valley plan and the Chase Lake plan was the distance of the units from one another. The general arrangement of the units on the Cedar Valley and Chase Lake plans was similar.

The elevation of contours on the three sites created the need for ramps to gain access from one unit to another. Figure 12 shows the finish ground elevation for each unit of the three plans, and illustrates how the differences in elevation changed the requirements for ramps at each school.

The total square footage at each school was: (1) Cedar Valley--38,337 square feet, (2) Meadowdale--38,083 square feet, and (3) Chase Lake--38,385 square feet.

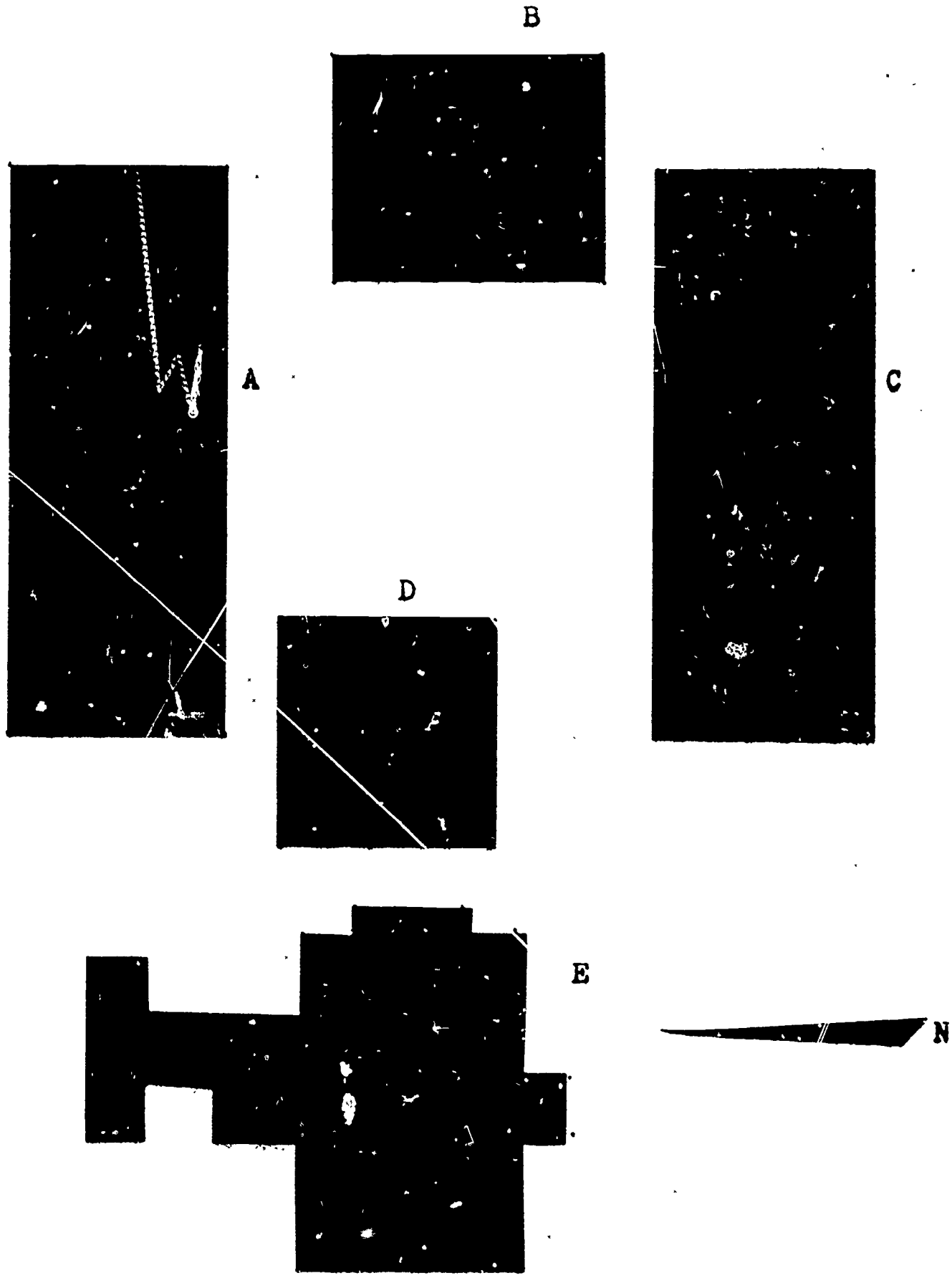


FIGURE 9

UNIT LOCATIONS CEDAR VALLEY
ELEMENTARY SCHOOL PLAN

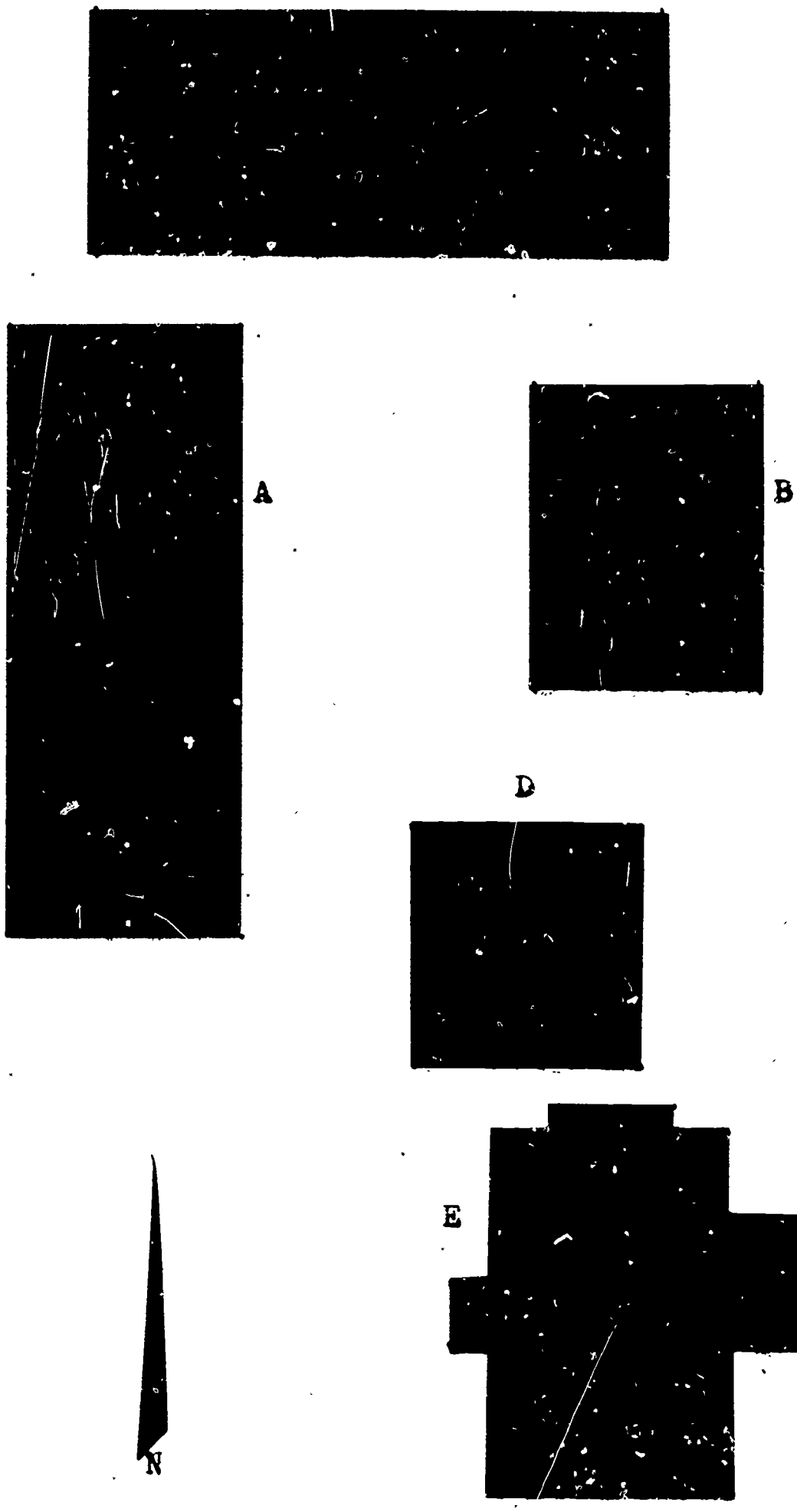


FIGURE 10

RELOCATION OF UNITS MEADOWDALE
ELEMENTARY SCHOOL PLAN

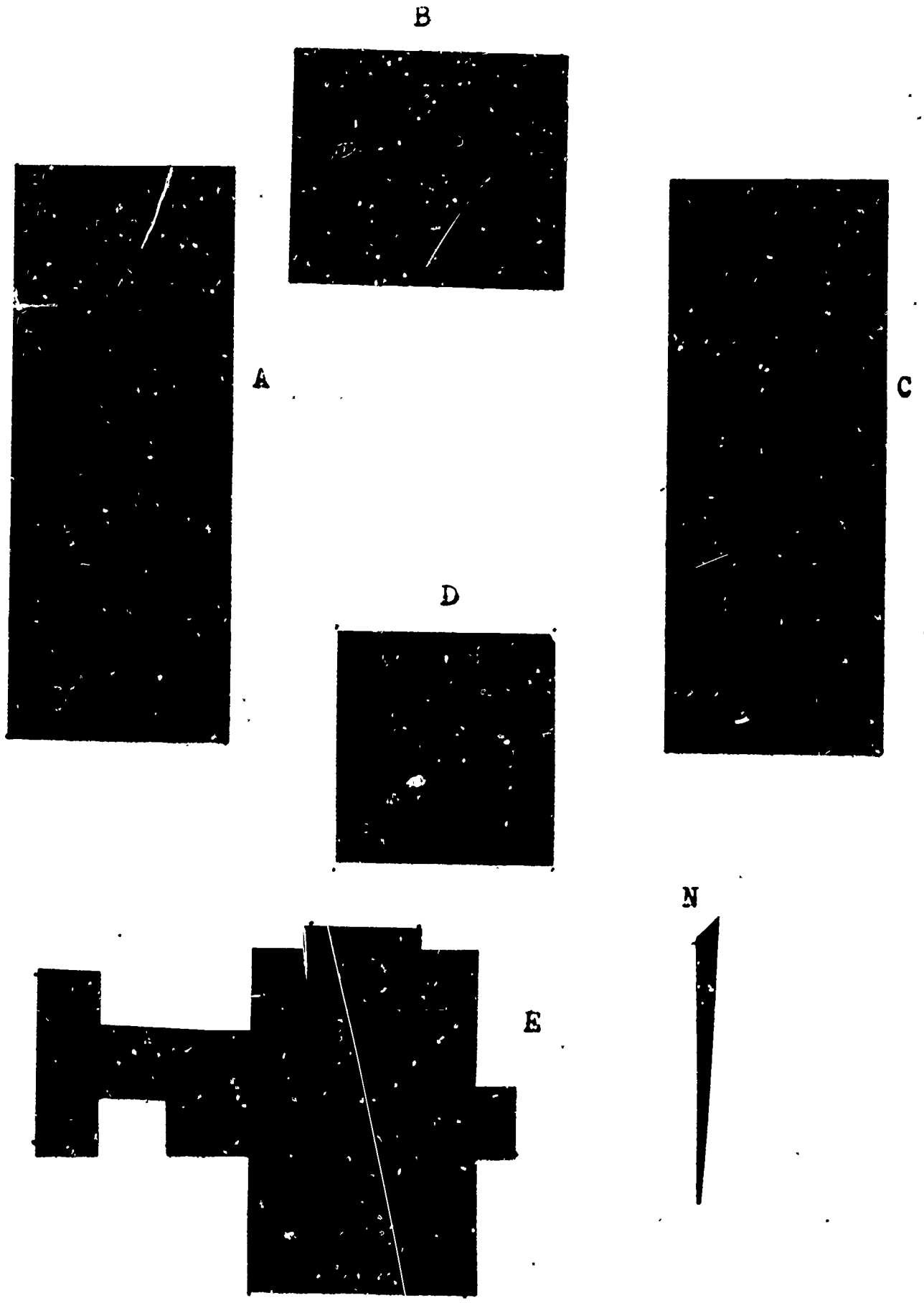


FIGURE 11

RELOCATION OF UNITS CHASE LAKE
ELEMENTARY SCHOOL PLAN

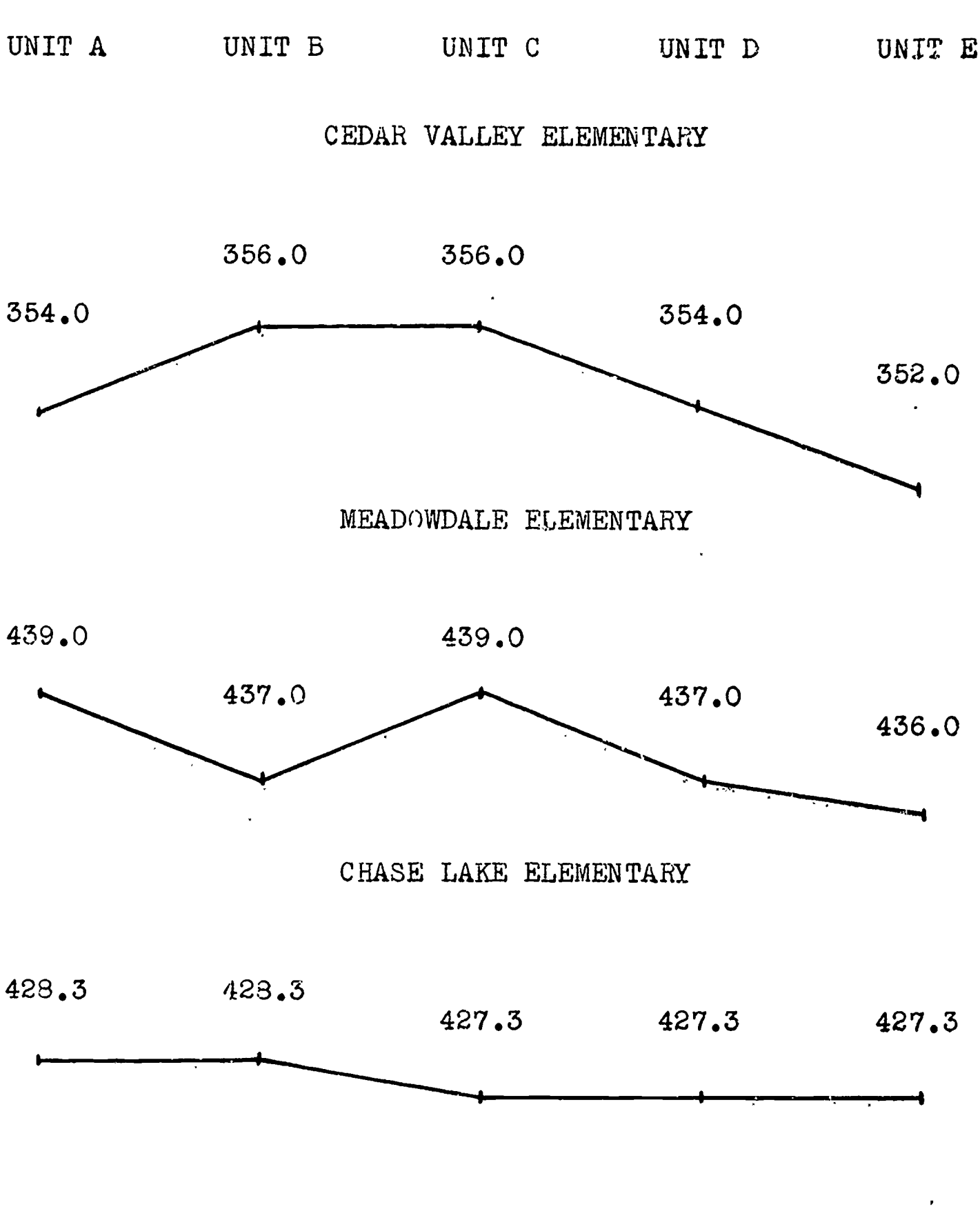


FIGURE 12

COMPARATIVE FIGURES REPRESENTING THE ELEVATIONS OF THE FIVE UNITS IN EACH OF THE THREE PLANS FOR CEDAR VALLEY, MEADOWDALE, AND CHASE LAKE ELEMENTARY SCHOOLS

A comparison of the square footage for each of the three schools would imply that changes in the plan had taken place. The differences in square footage were accounted for by state regulations which recognized walkways as being part of the basic building. The relocation of the plan units on the site was particularly important in maintaining specified square footage because as the distance between units increased, the area of covered walkways increased. Site contours complicated the placement of units to meet square footage requirements, since greater elevation differences between units necessitated longer walkways to lessen the incline. (See Appendix A, page 113.)

Where site topography decreased the distance between units, square footage was reduced. Although the closeness of units to one another helped to reduce the square footage, it created the need to relocate windows for lighting purposes.[27]

## Acoustical Changes in the Basic Plan

An acoustical problem became apparent upon completion of the Cedar Valley Elementary School. To help correct this problem, the firm of Robin M. Towne and Associates, Consultants in Acoustics, was employed to investigate the problem.

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[27]Above information taken from data and school plans on file in the Edmonds School District 15 Business Office, 1964.

The basic problem in the typical classroom was the shape of the room and the placement of acoustical materials. The center portion of the acoustical plaster on the concrete ceiling was not providing sufficient sound absorption for adequate noise control. The paint on acoustical plaster in several rooms helped to further reduce its effectiveness. To correct the problem, it was recommended that slightly less than 200 square feet of 9/16th cellulose fiber acoustical tile with a fissured surface be placed above 7 feet on three wall surfaces. It was also recommended that perforated hard-board panels 4 feet high and 12 feet wide be placed on the available wall space opposite the inside door 2 feet 6 inches above the floor. In order to quiet the area and cut down cross-interference between rooms, it was recommended that both acoustical tile and perforated hard-board panels be installed in the entrance halls to the classrooms.

The acoustical problem in the library was found again to be the shape of the room and the placement of acoustical materials. As in the classroom, the acoustical plaster of the concrete ceiling was not providing sufficient sound absorption for adequate noise control. Paint on the acoustical plaster helped reduce its effectiveness. To correct the problem, Towne and Associates recommended that acoustical tile be installed in the same manner as recommended for the classrooms. It was pointed out that the quality of materials used was not critical, but that installation should be on two

walls which did not have glass above 7 feet. To correct the problem of cross-talk between the library and the two smaller conference rooms, it was recommended that: (1) a solid-core door be used with acoustical seals at the top, side, and bottom, (2) that a special double glazed relight be used, and (3) to use heavier construction below the relight.

The acoustical problem in the multi-purpose room was that: (1) the acoustical plaster ceiling had considerably less sound absorption than was required, and (2) that no sound absorption on the hard opposite and parallel side walls was possible. It was suggested that the problem could be corrected by installing perforated hard-board panels 4 feet wide by 12 feet high with the bottom of the panels 2 feet 6 inches off the floor in eight bays of the south wall. It was also suggested that half-sized panels 4 feet wide by 6 feet high be installed with the bottom of the panels above the doors in each of two bays on the south wall. Full-size perforated hard-board panels were recommended in six bays of the north wall. Half-sized panels were also recommended in each of two bays on the north wall. A further recommendation was to extend the horizontal wood slot treatment on the rear wall to within 6 inches of the floor. The glass fiber-board was to be covered with wire screening below about 5 feet.

In order to correct the acoustical problem on the raised platform, it was recommended that: (1) six type "c" panels be installed two feet above the floor with a one-foot

separation between panels on the south wall, (2) ten type "c" panels be placed on the east wall in a similar manner to the south wall, and (3) that a better seal be put on the stage folding door. It was also suggested that no louvers be installed on certain doors.[28]

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[28]Robin M. Towne and Associates, Consultants in Acoustics, Acoustical Recommendations for Cedar Valley Elementary School, Study and Report (Seattle, Washington: May 1, 1963).

# CHAPTER IV

## ANALYSIS OF BID DATA

The bid data used in this chapter were obtained from State Forms B-8, Robert A. Bezzo and Associates, Architects, and the files of the Edmonds School District No. 15. Material is presented in this chapter in two general parts. The first part gives a comparison of costs for the Cedar Valley, Meadowdale, and Chase Lake projects. The second part gives a bid summary for each individual project.

### Cost Analysis of Contracts

Table I shows a comparison of the General, Mechanical, and Electrical contracts for the three projects used in this study. The General Contract was $352,639.00 at Cedar Valley School, $376,590.00 at Meadowdale Elementary School, and $379,725.00 at Chase Lake Elementary School. The Mechanical Contracts including sanitary sewerage contracts for each of the three schools in the same order were: (1) $116,093.00, (2) $121,845.10, and (3) $131,212.00. Electrical Contracts were: (1) $44,895.00, at Cedar Valley, (2) $46,513.00, at Meadowdale, and (3) $49,560.00, at Chase Lake. Sanitary Sewerage Facilities Contracts at the time of construction were $6,820.10 at Meadowdale, and $2,944.00 at Chase Lake. A Sanitary Sewerage Facility was not installed at the Cedar

Valley Elementary School at the time of construction, since service was not available at the time. The costs figures presented for Cedar Valley included a septic tank and drain field. A conversion to the Lynnwood City Sewers was made later. The costs of the conversion were not included above, since that phase of the project was not significant to this study.

## Cost Analysis of Projects

This paragraph relates the total costs of the three projects as presented in Table II. The total of all contracts for Cedar Valley Elementary School, Meadowdale Elememtary School, and Chase Lake Elementary School were: (1) $513,627.00, (2) $544,948.10, and (3) $560,497.00 respectively. A six percent architect's fee totaling $30,817.62 was assessed on the Cedar Valley project. Since the same plan was modified and re-used for the Meadowdale and Chase Lake Elememtary Schools, the architect's fee was reduced from six percent to four and a half percent for both schools. The architect's fee was $24,522.66 at Meadowdale, and $25,222.37 at Chase Lake. (See Appendix A, pages 105 and 111.) Project costs also included state sales tax which was four percent. State sales tax for each of the three schools in order was: (1) $20,545.08, (2) $21,797.92, and (3) $22,419.88. The grand total for the Cedar Valley project was $564,989.70, not including equipment. The project cost for Meadowdale

TABLE I

COST ANALYSIS OF CONTRACTS

| Item | Cedar Valley | Meadowdale | Chase Lake |
|---|---|---|---|
| I. General Contract | $352,639.00 | $376,590.00 | $379,725.00 |
| II. Mechanical Contract | 116,093.00 | 121,845.10 | 131,212.00 |
| III. Electrical Contract | 44,895.00 | 46,513.00 | 49,560.00 |
| Total of Contracts | $513,627.00 | $544,948.10 | $560,497.00 |

TABLE II

COST ANALYSIS OF PROJECTS

| Item | Cedar Valley | Meadowdale | Chase Lake |
|---|---|---|---|
| Total Cost Contracts | $513,627.00 | $544,948.10 | $560,497.00 |
| Architect's Fee | 6%-30,817.62 | 4½%-24,522.66 | 4½%-25,222.37 |
| State Sales Tax | 4%-20,545.08 | 4%-21,797.92 | 4%-22,419.88 |
| GRAND TOTAL | $564,989.70 | $591,268.68 | $608,139.25 |

Elementary School, not including equipment, was $591,268.68. The Chase Lake project cost $608,139.25, not including equipment.[29]

## Cost Analysis of General Contracts

The basic bids awarded on the general contract for Cedar Valley, Meadowdale, and Chase Lake, not including alternates, were $351,750.00, $353,000.00, and $364,000.00. A comparison of the alternates on the general contract for each of the three schools is shown on Table III. The first alternate shown on Table III is for a built-up roof and synthetic flashing. This alternate was a deductive on the Cedar Valley project and represented $9,105.00. The same item was included in the basic bids for Meadowdale and Chase Lake.

Alternate No. 2 which called for light-weight concrete and insulation was included at Cedar Valley without charge. This alternate was included in the basic bids at both Meadowdale and Chase Lake. Alternate No. 6 which called for vinyl asbestos tile was an additive of $4,042.00 at Cedar Valley, and was included in the basic bids for Meadowdale and Chase Lake. Acoustical treatment as provided at Cedar Valley was included in the basic bids at Meadowdale and Chase Lake. This was additive alternate No. 15 at Cedar Valley at

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[29]State Form B-8 on file in Edmonds School District 15 Business Office.

TABLE III

COST ANALYSIS GENERAL CONTRACT

| Item | Cedar Valley | Meadowdale | Chase Lake |
|---|---|---|---|
| I. Basic bid | $351,750.00 | $358,000.00 | $364,000.00 |
| II. Alternates | | | |
| Built-up roof and synthetic flash | Deductive #1 9,105.00 | Included basic bid | Included basic bid |
| Light-weight concrete & insulation | Additive #2 no charge | Included basic bid | Included basic bid |
| Vinyl asbestos tile | Additive #6 4,042.00 | Included basic bid | Included basic bid |
| Acoustical treatment | *Additive #15 1,020.00 partial treatment multipurpose room (center portion only) | Complete as recommended in acoustical study Included in basic bid (represented 5,820.00) | Complete as recommended in acoustical study Included in basic bid (represented 3,620.00) |
| Draperies and blinds | Additive #17 2,032.00 | Additive #11 2,800.00 | Additive #11 2,990.00 |
| Paint soffits and columns | Additive #22 2,900.00 | Included basic bid | Included basic bid |
| Marblecrete finish on multipurpose room | *Not provided under state ceiling | Additive #8 3,720.00 | Additive #8 3,700.00 |

TABLE III (continued)

| Item | Cedar Valley | Meadowdale | Chase Lake |
|---|---|---|---|
| Accordian-type folding door--library conference rooms | Included basic bid | Additive #10 230.00 | Additive #10 310.00 |
| School sign | Not provided under state ceiling | Additive #12 650.00 | Additive #12 605.00 |
| Son-Nel chalk and tackboard | Included basic bid (Quality) | Deductive #13 700.00 (Son-Nel chalk and tackboard) | Included basic bid (Quality) |
| Kitchen equipment | *Not provided under state ceiling | Additive #16 1,990.00 | *Not provided under state ceiling |
| Earthwork beyond 30 feet | Included basic bid | Additives #1&7 3,550.00 | Additive #1 5,450.00 |
| Parking area surfacing (crushed rock) | Included basic bid | Additive #2 2,500.00 | Additive #2 3,350.00 |
| Asphalt paving play courts | *Not provided under state ceiling | Additive #3 2,850.00 | *Not provided under state ceiling |
| Basketball backstops | *Not provided under state ceiling | Additive #14 950.00 | *Not provided under state ceiling |
| Concrete benches and gravel | *Not provided under state ceiling | Included basic bid | Deductive #17 680.00 |
| III. Total cost general contract only | $352,639.00 | $376,590.00 | $379,725.00 |

*Not included under state ceiling, but provided in the building.

$1,020.00, and provided partial acoustical treatment in the multi-purpose room only. Complete acoustical treatment as recommended in the study by Towne and Associates was included in the basic bids for Meadowdale and Chase Lake. The alternate for draperies and blinds was an additive for each of the three schools. This additive was $2,032.00 at Cedar Valley, $2,800.00 at Meadowdale, and $2,990.00 at Chase Lake. Additive alternate No. 22 for $2,900.00 for painting of the soffits and columns was accepted at Cedar Valley Elementary School. This item was included in the basic bids at Meadowdale and Chase Lake Elementary Schools. An additive alternate No. 8 which called for marblecrete finish on the multi-purpose room was $3,720.00 at Meadowdale, and $3,700.00 at Chase Lake. The basic bid at Cedar Valley included concrete tilt-up walls without marblecrete. Additive alternate No. 10 for accordian-type folding door for library conference room was accepted at Meadowdale and Chase Lake for $280.00 and $310.00 respectively. The same door was provided in the basic bid at Cedar Valley. The school sign was not provided at Cedar Valley Elementary. The sign for Meadowdale and Chase Lake was provided in additive alternate No. 12 for $650.00 and $605.00. Quality chalk board and tackboard was included in the basic bids at Cedar Valley and Chase Lake. Son-Nel chalk board and tackboard was substituted at Meadowdale Elementary on deductive alternate No. 13, representing

a savings of $700.00. Additive No. 16 at Meadowdale Elementary for kitchen equipment was accepted at $1,990.00. Earthwork beyond thirty feet of the building was included in the basic bid at Cedar Valley since the change in state matching had not taken place at the time. It was included at Meadowdale on additives No. 1 and 7 for $3,550.00.

Additive alternate No. 1 for Chase Lake Elementary School was $5,450.00. Parking area surfacing was included in the basic bid at Cedar Valley. It was picked up at Meadowdale on additive No. 2 for $2,500.00, and for Chase Lake at $3,350.00. Alternate No. 3 for the asphalt paving for play courts was included at Meadowdale for $2,850.00. It was not included in the general contract at Cedar Valley, but was later provided on a separate contract for $2,175.00. Asphalt paving of play courts was not provided at Chase Lake Elementary School. Basketball backstops were not provided at Cedar Valley and Chase Lake Elementary Schools, but were purchased later on separate contracts. Additive alternate No. 14 for basketball backstops was accepted at Meadowdale Elementary School for $950.00. The alternate calling for concrete benches and gravel was included in the basic bids at Cedar Valley and Meadowdale Elementary Schools. This item was deductive alternate No. 17 at Chase Lake and represented $680.00. The total cost of the general contract for each school, including additive and deductive alternates, was:

(1) $352,639.00 at Cedar Valley, (2) $376,590.00 at Meadowdale, and (3) $379,725.00 at Chase Lake.[30]

## Cost Analysis of Mechanical Contracts

Table IV shows the basic bids and alternates for the Mechanical Contracts at Cedar Valley, Meadowdale, and Chase Lake Elementary Schools. The basic bid not including alternates was $96,735.00 at Cedar Valley, $94,825.00 at Meadowdale, and $106,338.00 at Chase Lake. Additive alternate No. 1 for water service and fire protection was accepted for $7,255.00 at Cedar Valley, $6,700.00 at Meadowdale, and $5,990.00 at Chase Lake. Additive No. 2 for a water main extension was accepted at Meadowdale for $2,000.00. Additive alternate No. 2 for septic tank and drain fields was accepted at the Cedar Valley Elementary School for $4,052.00, since sewerage facilities were not available. This alternate was not needed for the other two schools, since hook-up to the Edmonds and Lynnwood City sewers was possible at the time of construction. Sanitary sewerage facilities contracts were $6,320.10 at Meadowdale and $2,944.00 at Chase Lake. Additive alternate No. 3 for storm drainage was accepted at Cedar Valley for $7,930.00. This alternate cost $11,500.00, and $16,690.00 at Meadowdale and Chase Lake Elementary Schools. A garbage disposal was provided at Cedar

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[30] Ibid.

TABLE IV

COST ANALYSIS MECHANICAL CONTRACT

| Item | Cedar Valley | Meadowdale | Chase Lake |
|---|---|---|---|
| I. Basic bid | $ 96,735.00 | $ 94,825.00 | $106,338.00 |
| II. Alternates | | | |
| Water service and fire protection | Additive #1 7,255.00 | Additive #1 6,700.00 | Additive #1 5,990.00 |
| Water main extension | Included #1 above | Additive #2 2,000.00 | Included #1 above |
| Septic tank and drain field (or) Sanitary Sewerage Facilities | Additive #2 Septic tank 4,052.00 | Sewer 6,820.10 | Sewer 2,944.00 |
| Storm drainage | Additive #3 7,930.00 | Additive #3 11,500.00 | Additive #2 16,690.00 |
| Garbage disposal | Additive #4 517.00 | Included basic bid | Included basic bid |
| Water closets (floor mounted) | Deductive #5 456.00 | Included basic bid | Included basic bid |
| Temperature control | Included basic bid (electronic) | Included basic bid (electronic) | Deductive #4 750.00 (air control) |
| III. Total cost mechanical contract | $116,093.00 | $121,845.10 | $131,212.00 |

Valley Elementary School for $517.00 on additive No. 4. Garbage disposals were included in the basic bids at Meadowdale and Chase Lake. Floor-mounted water closets were provided in the three schools. Deductive alternate No. 5 accounted for the change in specification in the amount of $456.00 at Cedar Valley Elementary School. Temperature control was provided in the basic bids at Cedar Valley and Meadowdale Elementary Schools. Deductive alternate No. 4 for $750.00 represented a change from electronic to air control at Chase Lake Elementary School. The total cost on the mechanical contracts including sanitary sewerage facilities were: (1) $116,093.00 at Cedar Valley, (2) $121,845.10 at Meadowdale Elementary School, and (3) $131,212.00 at Chase Lake Elementary School.

## Cost Analysis of Electrical Contracts

The basic electrical bids for Cedar Valley, Meadowdale, and Chase Lake Elementary Schools were: (1) $44,895.00, (2) $44,788.00, and (3) $47,975.00. Items concerning the electrical contract for the elementary schools in this study and the alternates are shown on Table V. The alternate for signal distribution augmented for the intercom was not accepted as an alternate on the electrical contract for Cedar Valley Elementary School, but was later provided at a cost of $389.00. The same alternate for Meadowdale Elementary School cost $510.00. The cost at Chase Lake Elementary School for

TABLE V

COST ANALYSIS ELECTRICAL CONTRACT

| Item | Cedar Valley | Meadowdale | Chase Lake |
|---|---|---|---|
| I. Basic bid | $44,895.00 | $44,788.00 | $47,975.00 |
| II. Alternates | | | |
| Signal distribution augmented for intercom | *Not provided under state ceiling | Additive #3 510.00 | Additive #2 432.00 |
| TV conduit and outlets | *Not provided under state ceiling | Additive #4 750.00 | Additive #3 757.00 |
| Substitute electronic clock system | Included basic bid | Substitute Additive #5 88.00 | Included basic bid (Not same specification) |
| Multi-purpose electric sound system | *Not provided under state ceiling | Additive #1 377.00 | Additive #1 396.00 |
| III. Total cost electrical contract only | $44,895.00 | $46,513.00 | $49,560.00 |

*Not included under state ceiling, but provided in the building.

this additive was $432.00. The additive alternate for television conduit and outlets cost $750.00 at Meadowdale, and $757.00 at Chase Lake. This item was not provided at Cedar Valley Elementary School. Substitute alternate for an electronic clock system instead of basic specification for wiring as used at Cedar Valley and Chase Lake was accepted for $88.00 at Meadowdale School on additive alternate No. 5. This item was included in the basic contract at Cedar Valley and Chase Lake, but was not of the same specification. The alternate for multi-purpose electric sound system was not provided at Cedar Valley. It was provided at Meadowdale and Chase Lake on additive No. 1 for $377.00 and $306.00. The total cost including alternates for the electrical contract at Cedar Valley, Meadowdale, and Chase Lake Elementary Schools were: (1) $44,895.00, (2) $46,513.00, and (3) $49,560.00.[31]

## Individual Project Bid Differences

This section of Chapter IV gives a comparison of the bid differences for each project for the General, Mechanical, and Electrical contracts. Of the three contracts, only one construction company was successful bidder on more than one project. The following paragraphs identify the bids for the first and second low bidders for the General, Mechanical,

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[31] Ibid.

and Electrical Contracts for each of the three schools used in this study. The bidders in each case are identified as Contractor A, Contractor B, and so forth.

General Contracts

Contractor A was the successful bidder for the General Contract at Cedar Valley Elementary School with a bid of $352,639.00 including alternates. The difference between the successful bidder and the next low bid was $33,641.00. Seven other contractors submitted bids for the General Contract at Cedar Valley. The basic bids of the seven, not including alternates, ranged from $390,000.00 to $400,000.00. The basic bids submitted by Contractors A and B were $351,750.00 and $384,347.00, respectively.

Contractor A was again successful bidder for the General Contract at Meadowdale Elementary School, with a basic bid of $358,000.00, and a total bid including alternates of $376,590.00. Contractor C was the second low bidder with a basic bid of $367,000.00, and a total bid with alternates of $380,100.00. The difference between low and second low bids was $3,510.00. Nine other companies participated in the bidding, and the basic bids not including alternates ranged from $367,500.00 to $422,900.00.

The General Contract at Chase Lake Elementary School was also awarded to Contractor A with a basic low bid of $364,000.00, and a total including alternates of $379,725.00.

Contractor D was second low bidder with a basic bid of $365,348.00, and a total bid including alternates of $381,503.00. The difference between the low and second low bids was $1,778.00. Only three other bidders participated in the bidding. The basic bids not including alternates for the three bidders ranged from $374,900.00 to $377,600.00. Contractor A had somewhat of an advantage in bidding the Meadowdale and Chase Lake projects, since the metal forms originally fabricated by this company for the Cedar Valley project were re-usable. (See Appendix A, pages 111 and 113, and Appendix B, pages 120-132.)

Mechanical Contracts

Mechanical Contractor E was awarded the Mechanical Contract for the Cedar Valley Elementary School with a basic bid of $96,735.00, and a total bid including alternates of $116,093.00. The next low bid was submitted by Contractor H with a basic bid of $97,379.00, and a total bid including alternates of $119,165.00. A difference of $3,072.00 occurred between the two bids. A range of basic bids by four other contractors was $99,813.00 to $109,971.00.

Contractor F was awarded the Mechanical Contract for Meadowdale Elementary School with a basic bid of $94,825.00, and a total bid of $115,025.00 including alternates. The second low bidder was Contractor E with a basic bid of $101,000.00, and a total bid including alternates of

$115,050.00. The difference between the accepted low bid and the next low bid was $1,025.00. These figures did not include a $6,820.10 Special Sewerage Facilities Contract which was awarded to another contractor. Seven other bidders participated in the bidding with basic bids ranging from $101,200.00 to $110,294.00.

The Mechanical Contract for Chase Lake Elementary School was awarded to Contractor G with a basic bid of $106,338.00, and a total bid including alternates of $128,268.00. The second low bidder, Contractor F, submitted a basic bid of $111,790.00, and a total bid with alternates of $134,565.00. A difference of $6,297.00 separated the two bidders. These figures did not include a $2,944.00 Special Sewerage Facilities Contract which was awarded to another contractor. Five other bidders participated in the bidding, with basic bids ranging from $111,400.00 to $120,460.00. (See Appendix B, pages 133-135.)

Electrical Contracts

Contractor I was successful bidder for the Cedar Valley contract, with a bid of $44,897.00. Contractor L submitted the second low bid of $49,700.00. No alternates were accepted on the electrical contract at Cedar Valley. The difference between the two low bidders was $4,803.00. One other company participated in the bidding with a basic bid of $50,987.00.

Contractor J was awarded the Electrical Contract at Meadowdale with a basic bid of $44,738.00, and a total bid including alternates of $46,513.00. Company M was next low bid with a basic bid of $48,144.00. The total bid including alternates was $49,433.00. A difference of $2,920.00 separated the two bidders. Three other bids submitted ranged from the basic bids of $50,022.00 to $55,830.00.

The successful bidder for the Electrical Contract for Chase Lake Elementary School was Contractor K with a basic bid of $47,975.00, and a total bid including alternates of $49,560.00. Contractor J was second low bidder with a basic bid of $48,990.00, and a total including alternates of $50,477.00. A difference of $917.00 separated the two bidders. Three other bids were submitted and ranged from basic bids of $49,955.00 to $51,333.00. (See Appendix B, pages 136-141.)

The bids for Cedar Valley were awarded November 6, 1961. The Meadowdale bids were awarded October 21, 1963, and the Chase Lake bids were awarded May 4, 1964. The square footage for each of the schools was 38,337 square feet at Cedar Valley, 38,083 at Meadowdale, and 38,385 at Chase Lake. The difference in square footage among the three schools was a result of a change in the method of evaluating square footage by the State Board of Education. The placement of the units largely accounted for the differences in square footage as walkways were included as part of the building

area. (See Appendix A, page 113.) The buildings in this study were constructed under state ceiling. The state ceiling was $14.75 at the time Cedar Valley Elementary was constructed. The actual square foot cost for the Cedar Valley project was $14.74 per square foot. The state ceiling for Meadowdale Elementary was $15.60, and the square foot cost for the project was $15.53. State ceiling at the time of the Chase Lake project was $15.85 per square foot. The actual square foot cost for Chase Lake was $15.84. The difference in state ceiling for each of the projects was due to inflation.

The overall financial savings on the Meadowdale project based on state ceiling used at Cedar Valley was an $8,869.03 savings in architectural fees, and $3,616.97 in construction costs. The total savings at Meadowdale based on Cedar Valley was $12,486.00. The Meadowdale project also included $4,800.00 more in acoustical treatment, but this figure was included in the basic bid.

Alternates provided at Meadowdale and not at Cedar Valley included marblecrete walls for the multi-purpose room, the school sign, kitchen equipment, asphalt play courts, basketball backstops, concrete benches, signal distribution, television conduit, and an electric sound system in the multi-purpose room. Alternates totaling $6,570.00 not provided at Cedar Valley were included under state ceiling for Chase Lake. The alternates represented in this figure

included marblecrete for the multi-purpose room, the school sign, concrete benches, a signal distribution, television conduit, and an electrical sound system for the multi-purpose room. (See Appendix A, page 113.)

Change orders of various types amounting to approximately one thousand plus dollars per project were made during the course of construction. The change-order costs were not included in this study, since they were not particularly significant.

# CHAPTER V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

### Summary

After the defeat of Senate Bill No. 392 on several occasions, the State Board of Education set up a controlled experiment to test its provisions. The experiment included a junior high project and an elementary project involving the use of stock plans. The Ephrata School District and the Edmonds School District participated in the junior high project. The elementary project involved three schools in the Edmonds School District. Conditions were more extreme for the junior high project than in the elementary project, because of geographic location.

Some research has been done in the various approaches to the use of stock plans in school construction. The best example of research pertinent to this study was an experiment using the Ephrata junior high plan modified for the Edmonds School District. The study pointed out that because of extreme differences between the two districts, the plan when bid at Edmonds was bid as plan A and plan B modified. Plan A conformed as closely as possible with the Ephrata plan, and plan B was changed almost completely from the original Ephrata plan with the exception of modual placement and

general appearance to better adapt to western Washington conditions. Bids were awarded on the modified plan B, and according to data obtained, represented a savings of $116,050.00 over the original plan A and provided a better facility. It was pointed out by Kochrian that the contractor lost approximately $80,000.00 on the project. This raised the question as to whether the savings indicated should be considered legitimate. Other research found in the field of school construction consistently stressed the need for flexibility in school construction to meet the changing demands of education. (See Appendix A, page 115.)

One purpose of the study was to determine whether dollars could be saved when using a stock plan or modifiable plan, and whether this always insured a better bid price. Another purpose was to point out the adequacies and inadequacies of stock or modifiable plans, and to determine whether this type of plan limited the school program, or was able to meet the changing demands of education. A third purpose of the study was to determine what type of plan was best for repeated use in terms of materials, design, and flexibility. A fourth purpose was to determine the feasibility of using stock plans at the state level, and whether the state should encourage the use of them. A fifth purpose was to determine whether stock or modifiable plans could be a factor in time saved.

The study took place in western Washington. The area was hilly with uneven topography causing varying conditions for school sites. The study was conducted in the Edmonds, Washington School District which was the fifth largest district in the State of Washington in terms of enrollment.

The project involved three elementary schools constructed from the same plan with modifications to fit the individual school site. The plan used consisted of three units housing twenty general classrooms, a multi-purpose room with a double-sized gymnasium and raised platform, and an administrative unit, containing an office, library, health room, faculty room, conference room, and storage facilities.

The building was constructed with a series of hyperbolic and inverted paraboloids. The paraboloids formed fixed wall moduals which offered no chance of flexibility in moving walls and partitions for future changes in the educational program. One major problem found in the original Cedar Valley plan was a severe acoustical problem. A study of the problem was made by Robin M. Towne and Associates with recommendations for correcting it. The acoustical problem was remedied at Cedar Valley, and the revised specifications were incorporated into the Meadowdale Elementary School during construction of the building. Design changes which occurred upon the repeat construction of this plan primarily involved the rearrangement of the units rather than facilities within

the units. Changes which occurred within the units were found mostly in the administrative unit. Changes within the administrative unit included the rearrangement of storage, conference rooms, health room, and so forth. The changes were due largely to improvements in planning and revised requirements. Improvements such as door arrangement, the addition of a preview wall in the audio-visual room, and some new changes in cabinet work rounded out the modifications in the administrative unit. Changes which occurred within the three classroom units were again a result of site orientation, and included such things as relocation of the primary and intermediate rooms from the basic plan. This in turn affected the placement of chalk boards, bulletin boards, cabinet work, windows, and doors. The plan used in this study was designed according to western Washington building codes and climatic factors. Some of the factors included severe earthquake and rainfall problems. The site appeared to be the major factor in the need for plan modification in this study. The varying site conditions such as topography, soil conditions, access, availability of utilities, ramp requirements between units, parking areas, and play fields determined the orientation, or placement, of the building on the site. Although difficult to identify in terms of dollars and cents, the orientation of the building to the site affected costs in two ways: (1) by creating the need for

plan modification, excessive earthwork, etcetera, and (2) by changing the square footage through adjustments in the covered walkways. Exterior harmony between the building and the site was affected by building orientation at the Meadowdale and Chase Lake Schools. The boiler room and kitchen were major focal points on the approach to the Meadowdale School entrance. The plan arrangement at Chase Lake necessitated the removal of trees and other natural landscape. (See Appendix A, page 115, and Figures 3 and 4, pages 44 and 45.

Bids for the Cedar Valley project number 6034 were awarded in November, 1961. The Meadowdale project number 6195 bids were awarded in October of 1963, and the bids for Chase Lake project number 7044 were awarded in May of 1964. The square footage for Cedar Valley, Meadowdale, and Chase Lake projects was 33,337, 33,083, and 33,385 respectively. The state ceiling for the Cedar Valley project was $14.75 per square foot, and the square foot cost for construction was $14.74. The state ceiling at the time of the Meadowdale project was $15.60 per square foot, and the square foot cost for construction was $15.53. The state ceiling for Chase Lake was $15.85 per square foot, and construction cost per square foot was $15.84. Establishing significant cost figures for the research project was difficult because of the varying conditions which applied only to one project, and the time lapse between bids. It was difficult to examine bids

in terms of cost because of the bidding seasons, and how the timing affected the bid figures. (See Appendix A, pages 111 and 113.) The state ceiling was used in this study as a control in establishing cost figures which were significant and reflected factors of inflation, etcetera. Data found in Chapter IV shows several alternates not provided at Cedar Valley which were included under state ceiling in the amount of $12,486.00 at Meadowdale. The Meadowdale School playfield site work had already been completed, and reflected a savings in the bid price which allowed more alternates to be taken. Data also shows that alternates amounting to $6,570.00 not provided at Cedar Valley were provided at Chase Lake under state ceiling. The additional alternates obtained for Meadowdale and Chase Lake were partially obtained through the savings in architectural fees which were six percent for the Cedar Valley project, and four and a half percent for Meadowdale and Chase Lake. The additional one and a half percent on the Cedar Valley project amounted to $7,704.40. It appeared that, excluding architectural savings, it cost $3,616.97 less to construct the Meadowdale School than it cost to construct the Cedar Valley School. This figure again does not reflect the site work which had already been completed on the Meadowdale playfield, and would possibly be offset by the savings in construction costs. Excluding the architectural savings, it appeared that it cost $2,552.09

more to construct the Chase Lake School than to construct the Cedar Valley School.

After the Cedar Valley Elementary School and the Meadowdale Elementary School had been occupied for some time, a survey was made to determine some of the adequacies and inadequacies of the buildings. (See Appendix C, page 153.) The principals of both schools, and Edmonds School District consultants who spent part of their time working in the buildings, participated in the survey. The Chase Lake School was not occupied at the time the study was conducted, and was therefore not included in this phase of the follow-up. According to the survey, the general classrooms were adequate in terms of size, arrangement, and cabinet work. There appeared to be a slight problem of chalk board placement at Meadowdale, which was a result of building orientation. This problem concerned the effect of sunlight. The multi-purpose room appeared to be very satisfactory in terms of size and usage. It was suggested, however, that the kitchen should be placed away from the raised platform end in future plans if possible. The administrative unit appeared to be satisfactory in terms of arrangement, cabinet work, and storage. There appeared to be improvements at the Meadowdale School when compared to the Cedar Valley School. Some of the improvements were door arrangements and room arrangements. Some minor problems concerning room sizes, etcetera, could not be

corrected because of the space allocation within the administrative unit. The severe acoustical problem experienced at Cedar Valley was corrected at Meadowdale, and the acoustics were very satisfactory according to school personnel. According to Kochrian and Bezzo, problems relating to flexibility were encountered during the planning of Meadowdale and Chase Lake. It was also noted by other school personnel that this could pose a problem should the need for more flexibility arise. In the overall analysis the buildings were very attractive and functional for the present needs.

## Conclusions

The following conclusions were drawn concerning the modifiable plans used for the construction of three elementary schools in the Edmonds, Washington School District:

1. There was some evidence that a cost savings did occur by a repeated use of the Cedar Valley plan for the Meadowdale and Chase Lake Schools. It appeared, however, that the savings was in the area of architectural services only, which allowed $3,800.63 more in alternates to be taken under state ceiling at Meadowdale, and $4,017.91 at Chase Lake. It is difficult to determine whether this savings is legitimate since data were not available to show whether a new design

for each site would have represented a more substantial savings, or whether the savings in architectural services might have caused stereotype buildings, poor orientation, inflexibility, repeated errors, and change orders for missing items.

2. It would appear that excluding architectural fees, actual construction costs were not reduced through the repeated use of one plan, since the amount of $3,616.97 saved in construction costs for Meadowdale was probably offset by the playground development which had taken place before construction had started, and the evidence available showing that construction costs were $2,552.09 more for Chase Lake than Cedar Valley.

3. The modifiable plan approach appears to be necessary over a true stock plan approach where site conditions vary causing problems in orientation of the building to the site. Good school sites in a growing community are becoming more and more difficult to obtain, and it follows that the orientation problem of adapting a stock plan to the site would also become a greater problem because of less adequate sites. Since the cost of site development varies greatly from building

to building, it appears doubtful that architectural savings would offset the cost of adapting standard plans to sites in terms of the overall picture. The value and need of standard plans is questionable when modifications are necessary to make them function.

4. There is question as to whether a stock plan insures better bid prices. The low bids for the second project would tend to indicate that contractors were looking toward the third project. The high bids for the third and final project would tend to indicate that the contractors found it either necessary to increase prices because of their experience, or that there was no incentive for another similar project in the future. The best bids on the modifiable plan used occurred for the Cedar Valley and Meadowdale Schools in the months of October and November, which was probably the time of year when contractors were competing to obtain business. The Chase Lake project was bid in May and produced higher bids than the two earlier schools. It would appear that business was not as competitive as during the spring season. The winning contractor had a bid advantage for the second and third projects,

as he was able to use the hyperbolic paraboloid steel forms which had been constructed for the first school.

5. The possibility of salvaging desirable natural landscaping, and the problem of orientating the school building harmoniously with the surrounding area, is somewhat limited when using standard plans. Standard plans appear to restrict optimum use of the school site for landscaping.
6. A refinement of workmanship was apparent on the second school because of the contractor's familiarity with the plan of the project.
7. Perhaps two to three months planning time might be gained by using standard plans according to the experience in this study. The Edmonds School District did not realize any actual gain, however, because of the financial uncertainty which delayed the bidding and start of the second and third projects. The number of modifications necessary to adapt a standard plan to a site would also have an effect on the savings of time.
8. Based on this study, it would appear that a stock plan or modifiable plan should be one which is highly flexible in terms of future educational demand, be simple in design, and be able to

utilize materials which are common to construction and are readily available. Unless a standard plan were highly flexible in terms of design and materials, some contractors and manufacturers might not be interested in bidding. The particular plan used in this study lacked some of the qualities of flexibility which posed a problem in planning, and could also present a problem for future changes in education. No evidence of high costs or poor bid coverage through the standardization of materials was found in this study, although fewer contractors participated in the bidding for the third school.

9. A plan made up of multiple buildings would appear to be better for repeated construction than a single unit plan, as it would probably require less cost in adapting it to fit the site through the elimination of excess earthwork.

10. It would appear that the use of a modifiable or stock plan would be increasingly more difficult to use on the junior and senior high levels because of the size and complexibility of the buildings. It would also follow that if stock plans or modifiable plans were used at the state level, many sets of plans would have to be designed to

suit geographic areas or locations, building size, and building type.

11. It would appear that stock or modifiable plans encouraged from the state level could force a community to construct facilities which are not needed. It would also appear that state plans might not include facilities required in a given community, and tend to dictate curriculum. It would seem likely that standard plans developed within a school district would be more practical than those developed at the state level in terms of curriculum needs, etcetera.

12. It would appear that if stock plans were adopted at the state level, periodic review and revisions would be necessary to keep pace with educational and construction progress.

13. It is assumed that the buildings constructed from the stock plan in this study were satisfactory as they were accepted by the Edmonds School Board and were functioning in a satisfactory manner.

14. After examining related literature and the data available in this study, it is difficult to provide a simple answer as to whether stock plans or modifiable plans are good or bad, because of the many variables. It appears doubtful, based

on the stock plan experiences in other states, and looking toward probable educational changes in the future, that the stock plan approach is practical in terms of cost or utility, except for small schools of simple design.

## Recommendations

In view of the information obtained from this study it is recommended:

1. That the buildings constructed from the modifiable plan used in this study be reviewed some time in the future to again evaluate how they are meeting the demands of changing education.
2. That future standard plans be designed in a more universal manner which would not require the need for special form work or equipment thereby reducing the possibility of good competitive participation by contractors and manufacturers.
3. That further study be carried on to produce more conclusive evidence as to whether the stock plan approach to school construction is desirable.
4. That school districts considering the use of standard plans give serious thought to all implications which could affect the school program in terms of curriculum and cost for both the present and the future.

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Meetings

| Date | Place | Participants |
|---|---|---|
| July 6, 1964 | Administration Center, Edmonds School District 15, Lynnwood, Washington | John Hulvey, Consultant School Facilities and District Organization--State of Washington<br><br>Harold Silvernail, Supt. Edmonds School District 15<br><br>E. M. Allen, Assist. Supt. in Charge of Business, Edmonds School District 15 |
| August 14, 1964 | Administration Center | Harold Silvernail<br><br>John Kochrian, Director of Plant Facilities<br><br>John Porter, Assist. Supt. in Charge of Instruction |
| August 17, 1964 | Robert A. Bezzo & Associates, Edmonds, Washington | John Hulvey<br><br>Robert Bezzo, Architect |

| Date | Place | Participants |
|---|---|---|
| September, 1964 | Edmonds, Washington | Robert Bezzo<br>E. M. Allen |
| September 13, 1964 | Robert Bezzo & Associates Edmonds, Washington | Robert Bezzo |
| September 22, 1964 | University of Washington | George D. Strayer, Professor of Educational Admin.<br>John Hulvey |
| October 5, 1964 | Meadowdale Elementary School | John Burbank, Principal, Meadowdale Elementary |
| October 7, 1964 | Administration Center | Paul Hylton, Director of Pupil Personnel |
| October, 1964 | Administration Center | Virginia Davis, Supervining Nurse, Edmonds School Dist. |
| October 8, 1964 | Administration Center | Robert Bezzo |
| October 13, 1964 | Administration Center | John Kochrian |
| October 20, 1964 | Cedar Valley Elementary School | Gene Carson, Principal, Cedar Valley Elementary |
| October 26, 1964 | Administration Center | John Hulvey |
| November, 1964 | Administration Center | John Hulvey |
| December 2, 1964 | Administration Center | John Kochrian<br>John Hulvey |
| December 15, 1964 | Administration Center | John Kochrian |

APPENDIX A

LETTERS AND COMMUNICATIONS

December 18, 1962

Dan F. Miller, A.I.A. & Associates, Architects
406 Main Street
Edmonds, Washington

Dear Dan:

By this time you are well aware of our School Board's action regarding the retaining of your architectural services to plan, develop specifications and supervise construction of two elementary schools in accordance with your letter to me dated December 4, 1962. The contents of your letter should become a part of the contract between the school district and your office. The School Board has agreed to retain your firm's services to do the architectural work to repeat the Cedar Valley Elementary School plan on two additional sites, namely Elementary Service Area #2 in the Meadowdale area, and Elementary Service Area #15 in the Shasta Park area. You will be free to re-work any details and change materials to either effect economy or improve quality of the structure now that you have finished construction and we have had experience living in the building. You will also be free to readjust the building locations on the site, but you must keep the basic construction and appearance of the existing school as you adapt the new schools to the individual sties. For this work, the Board agrees to pay you four and one half per cent of the construction costs for each of the two buildings.

Enclosed are six copies of our architectural contract form, three copies for each building project. Please have these forms filled and return them to us in the near future. Should we be granted an additional building by the State in early January, we would want the school in Elementary Service Area #2 constructed first, and we would hope that we would be able to occupy that building in the early part of the 1963-64 school year.

We have been most happy with the work your firm has done for our school district, and we congratulate you on winning the award for these two new buildings. We look forward to working with you again in our construction program.

Yours sincerely,

HAROLD E. SILVERNAIL
Superintendent of Schools

HES:ea
cc: Jack Allen, John Kochrian

December 19, 1962

Dr. George Strayer, Professor of Education
School of Education
University of Washington
Seattle 5, Washington



Dear George:

On Monday evening our School Board voted unanimously to attempt a variation of a "Stock Plan" project for the construction of two additional twenty-room elementary schools very similar to our recently completed Cedar Valley Elementary School. The Board has selected the architectural firm of Dan Miller and Associates, who were the architects for the Cedar Valley School, to do the architectural work to repeat the Cedar Valley Elementary School for Elementary Service Areas #2 and #15 in our district. The architect has been given the privilege of adapting the buildings to the new site conditions, but he is to keep the same basic construction and appearance of the existing school. The architect has also been given the privilege of re-working details and changing materials to either affect economies or improve the quality of the building. He will charge four and one half per cent of the construction costs for his services.

Bill Fortune, our Purchasing Agent, is very interested in doing a Master's project on this stock plan idea, and I believe he will call you about it before long. If you do not feel this project is of Master's thesis caliber, please do not feel obligated in any way. We do feel that a Master's thesis on this subject would add sophistication to the experiment.

Yours sincerely,

HAROLD E. SILVERNAIL
Superintendent

cc: Bill Fortune
John Kochrian
HES:ea

EDMONDS SCHOOL DISTRICT NO. 15

January 3, 1964

MEMORANDUM

TO: Robert Bezzo and Associates, Architects
Edmonds, Washington
E. M. Allen, Assistant Superintendent of Schools
Edmonds School District #15
Vern Leidle, Consultant for Facilities and Organization
Office of State Superintendent of Public Instruction

FROM: Harold E. Silvernail, Superintendent
Edmonds School District #15

SUBJECT: Research Project on Cedar Valley, Meadowdale and Chase Lake Elementary Schools



All of you are aware of the fact that our School Board authorized the construction of three buildings from the same general elementary school plan. The Cedar Valley Elementary School was designed by Dan Miller, A.I.A., and Associates, of Edmonds, Washington. Later this basic school plan was used for the Meadowdale Elementary School, which is now under construction. This same plan is now being used for the development of the final plans for the Chase Lake Elementary School. These three schools, built on the same basic plan, should all be in use during the 1964-65 school year.

Because our School Board and citizens are interested in construction of good, well-planned schools, and because we are also interested in economy of construction, these three schools seem to hold some potential as a research project which could give us some information about one type of stock planning.

Mr. Bill Fortune, our school district Purchasing Agent, is anxious to develop a master's thesis with the University of Washington using as his subject this basic plan for three elementary schools. This memorandum is written to let you know that we wholeheartedly approve of Mr. Fortune's pursuit of this project, and we sincerely hope that you will cooperate with him in every way to make his study a success.

cc: Bill Fortune
HES:ea

February 7, 1964

To: Mr. Vern Leidle
Consultant for Facilities and Organization
Office of State Superintendent of Public Instruction
Olympia, Washington

From: William Fortune
Purchasing Agent
Edmonds School District #15
Alderwood Manor, Washington

Subject: Research Project on Cedar Valley, Meadowdale, and Chase Lake Elementary Schools



Dr. Harold Silvernail contacted you recently regarding my intent to develop a master's thesis based upon the stock plan idea employed for the Cedar Valley, Meadowdale, and Chase Lake elementary schools in our district. Before actually starting the project, I must turn in an outline for approval to the Graduate Study and Research Committee at the University of Washington. Dr. George Strayer of the University of Washington has given encouragement in pursuing this particular topic.

Since my association with the buildings involved has been limited to the equipment phase only, I am finding it necessary to seek advice in planning the outline. With respect toward your valuable time, I am attempting to obtain the needed information by directing several questions to you. Your comments to these questions will be helpful in preparing the outline, and greatly appreciated.

It is also my hope in doing this project, that I might be of assistance to your office in some way. Don't hesitate to let me know if you have any suggestions.

Please comment on the following as best you can, and return to me in the self-addressed envelope provided.

Thank you.

To: Mr. Robert Bezzo and Associates, Architects
Edmonds, Washington

From: William Fortune, Purchasing Agent
Edmonds School District #15

Subject: Research Project on Cedar Valley, Meadowdale, and Chase Lake Elementary Schools

Dr. Harold Silvernail contacted you recently regarding my intent to develop a master's thesis based upon the stock plan idea employed for the Cedar Valley, Meadowdale, and Chase Lake elementary schools in our district. Before actually starting the project, I must turn in an outline for approval to the Graduate Study and Research Committee at the University of Washington. Dr. George Strayer of the University of Washington has given encouragement in pursuing this particular topic.

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It is also my hope in doing this project, that I might be of assistance to your office in some way. Please let me know if you have any suggestions.

Please comment on the following as best you can, and return to me in the self-addressed envelope provided.

Thank you.

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
FORMERLY
DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E. 115 FOURTH AVENUE SOUTH • EDMONDS • WASHINGTON • PROSPECT 6-2929

FEBRUARY 13, 1964

MR. WILLIAM FORTUNE
18216 64TH WEST
LYNNWOOD, WASHINGTON

SUBJECT: RESEARCH PROJECT ON CEDAR VALLEY, MEADOWDALE ELEMENTARY, AND CHASE LAKE ELEMENTARY SCHOOLS

DEAR BILL:

I AM HOPING THE ENCLOSED INFORMATION WILL HELP YOU IN PREPARING YOUR RESEARCH PROJECT OUTLINE. THIS SOUNDS AS IF IT WILL BE AN INTERESTING STUDY, AND YOUR FINDINGS MAY WELL ANSWER SOME QUESTIONS THAT WILL PERHAPS BE ASKED ME IN THE NEAR FUTURE REGARDING THESE SCHOOLS. I WILL BE GLAD TO HELP YOU IN ANY WAY I CAN, SO DO NOT HESITATE TO CALL OR ASK QUESTIONS AS THEY COME UP.

ANSWERS TO YOUR OUTLINE QUESTIONS ARE AS FOLLOWS:

1. THE TITLE SEEMS ADEQUATE AS IT IS NOW STATED.
2. A. LOCAL - TO EVALUATE THE REASON FOR ADOPTING A MODIFIABLE PLAN FOR THE THREE SCHOOLS. THE MAIN REASON FOR ADOPTING THIS POLICY AS I UNDERSTAND IT WAS TO SAVE TIME IN REDRAWING PLANS. SO THAT THE SCHOOL COULD BE LET OUT FOR BIDS, AND CONSTRUCTED EARLIER.
   B. STATE - TO EVALUATE AT THE STATE LEVEL ANY ADVANTAGES OR DISADVANTAGES IN TIME SAVED IN PROCESSING A MODIFIABLE PLAN AS AGAINST A NEW PLAN, OR ANY OTHER ADVANTAGES OR DISADVANTAGES THAT MIGHT APPEAR AT THE STATE LEVEL.
3. LIMITATION OF TIME REQUIRED TO EVALUATE THE THIRD SCHOOL (CHASE LAKE). IT IS UNLIKELY THAT THIS SCHOOL WILL BE READY FOR OCCUPANCY BEFORE LATE 1964. THE SCHOOL SHOULD BE OCCUPIED FOR AT LEAST A YEAR BEFORE AN ACCURATE EVALUATION CAN BE GIVEN REGARDING ITS SUITABILITY TO SERVE THE LATEST EDUCATIONAL PROCEDURES, VISUAL AID REQUIREMENTS, CURRICULUM CHANGES, ETC.
4. DISCUSSIONS WITH ADMINISTRATORS OF THE DISTRICT, THE ARCHITECT, AND THE GENERAL CONTRACTOR OF THE BUILDING.
5. REVERSE FLOOR PLAN, RELOCATION OF CLASSROOM UNITS, ADJUSTMENT OF UNITS TO FINAL GRADE CONDITIONS, RAMPS, HYPERBOLIC PARABOLOIDS, INVERTED PARABOLOIDS, MULTI-PURPOSE ROOM.

YOURS VERY TRULY,

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS

ROBERT A. BEZZO

RAB:BD

Harold E. Silvernail
SUPERINTENDENT

John A. Porter
ASS'T. SUPT.-INSTRUCTION

# Edmonds School District No. 15
Snohomish County

ADMINISTRATIVE CENTER

E. M. (Jack) Allen
ASS'T. SUPT.-BUSINESS
DISTRICT SECRETARY

Florence Cardiff
RECORDING SECRETARY

PRospect 8-6931 | Lynnwood, Washington 98036 | 3800 196th S.W.

September 15, 1964

Mr. William Fortune, Purchasing Agent
Edmonds School District #15
3800 196th Southwest
Lynnwood, Washington

Dear Mr. Fortune:

This letter is written in response to your request for some general statements concerning our school district's plan to re-use an elementary school building plan for two additional schools in our district. Because of the "stock plan" pressures within our district and state, our School Board decided to build three buildings from the same modifiable plan. The idea involved in this scheme was to determine from actual experience what savings would accrue to the district from three buildings being constructed from the same plan, and to determine what problems the district would face when such an idea was put into action. We first negotiated with the architect of the school plan that was selected, and you will remember that the fee was reduced from the original six per cent to four and one half per cent for each of the two buildings that were built after the original building.

One of the first problems to confront us and the architect after we had moved into the first of the three schools was that we discovered how to improve the utilitarian aspects of the first building. Immediately this called for some modification of the plan before we began construction on the second and third buildings. We also found that the particular plan we had selected to re-use in the construction of these buildings was not as flexible as we hoped it would be, because the concrete hyperbolic paraboloid roof restricted the movement of walls under the paraboloid. This taught us that any individual plan is either more or less adapted to modification and that this aspect of a building should be seriously considered before assigning a particular plan to re-use. We also found that site conditions and contours called for additional modification at least in the arrangement of the buildings on the sites. Our plan did seem to adjust to site changes relatively easily. Although the concrete hyperbolic paraboloid structure gave us the desired Class A fire rating, we found that this type of construction had other complications, namely in bidding. We found that the contractor who had constructed forms for pouring the paraboloid roof had a considerable advantage in the re-bidding of additional schools. However, bids on the additional schools showed an increased price to meet our higher specifications that came from improvements in the original plan, and the better bidding knowledge of the contractors.

We sincerely hope that from the master's degree project that you are working on, you will be able to aid us in coming to some conclusions regarding the following questions:

1. What type of building adapts best to a modifiable plan for an elementary school?
2. What construction factors should be taken into consideration in the selection of building materials for a modifiable plan?
3. Does an elementary school building planned in units, rather than in one single building, adapt better to a modifiable plan?
4. When school buildings are constructed on a modifiable plan basis, how serious is the objection that we perpetuate construction and planning problems when several buildings are constructed nearly the same as an original building?
5. Does evidence show that certain contractors are advantaged, while others are not, on a modifiable building plan scheme for school construction?
6. Does evidence show that bid prices for buildings constructed under a modifiable plan increase or decrease because of repetitive construction?
7. What other advantages and disadvantages seem to accrue from the use of a modifiable plan in school construction at the elementary school level?

Bill, it would seem to me that your answers to these questions should be of considerable use to our School Board and to other school boards as they think about planning new school buildings. Certainly there are a lot of variables involved, and it is questionable whether or not enough control of these variables can be maintained so that statistically sound conclusions can be made which would be applicable all around the state. Nevertheless, there should be trends resulting from your study which will be of material aid to us, the State Board of Education, and the State Legislature, in planning for construction in the future. I am looking forward to the results of your study with great anticipation.

Yours sincerely,

Harold E. Silvernail

HAROLD E. SILVERNAIL
Superintendent

HES:ea

# Edmonds School District No. 15

Alderwood Manor, Washington

September 10, 1964

Mr. William Fortune
Purchasing Agent
Edmonds School District #15
3800 196th S. W.
Lynnwood, Washington

Re: Cedar Valley, Stock Plan

Dear Bill:

The repetitive Stock Plan, first named the Cedar Valley Elementary, was designed a Class A Building. Two other buildings were designed and built at the same time and possible comparisons can be made of each. The Cedar Valley Elementary was the most expensive of three because of Class A construction compared to Class B.

Subsequently the Meadowdale Elementary and Chase Lake Elementary have been bid and are under construction; each building with its modifications and changes from the original Cedar Valley Elementary. More cabinet work, acoustic treatment and blacktop were basis modifications and would account for some increase in these building costs.

The first building (C.V.) had only one bidder within state ceiling costs, but the two later buildings were well within this cost and permitted acceptance of a number of alternates not possible in the first building.

In each subsequent building the site gave an advantage to the newer buildings; in one case a playfield already graded and cleared, and in the second, a very workable site with summer site work, limited sewer installation and very favorable bidding time.

The refinement and workmanship on each building has gotten better as the contractor became more familiar with requirements and also techniques of fabrication.

The General Contractor, Edmonds Construction, was the successful bidder on all three buildings. No other prime contractors (mechanical and electrical) was a successful bidder on either of the two later buildings.

More advantage was gained in competitive bidding on the 2nd building, Meadowdale Elementary, because of the third opportunity to bid on Chase Lake.

The Chase Lake Elementary building was more costly due primarily to either a more costly labor market or the contractor thought he had the job pretty well secured. In effect it was even tighter to get under ceiling costs than the initial job, except for the modifications incorporated into the last building.

A comparison of square foot cost of the repetitive plan with other buildings bid at the same time is an invalid one because of the alternates that were taken to determine the contract price and what was necessary to put in the building later. Also, a change by the State Board in evaluating square footage allowable became a factor as well as orientation of the buildings on the site influencing the amount of covered walkways allowed.

The construction used on this building is not one that lends itself to modifiability and becomes only an analysis for Stock Plan use. Only because of the number of buildings involved was it possible to make use of one site, otherwise considerable more cost would have been involved in site grading.

Sincerely,

John E. Kochrian
Director of Plant Facilities

JK: ak

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
FORMERLY
DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E. 115 FOURTH AVENUE SOUTH • EDMONDS • WASHINGTON • PROSPECT 6-2929

OCTOBER 16, 1964

MR. WILLIAM FORTUNE
PURCHASING AGENT
EDMONDS SCHOOL DISTRICT NO. 15
3800 - 196TH S.W.
ALDERWOOD MANOR, WASHINGTON

RE: MODIFIABLE PLAN - CEDAR VALLEY, MEADOWDALE AND CHASE LAKE ELEMENTARY SCHOOLS

DEAR BILL:

IN RESPONSE TO YOUR RECENT REQUEST FOR SOME THOUGHTS FROM THIS OFFICE REGARDING THE USE OF MODIFIABLE PLANS ON THE ABOVE SCHOOLS, THE FOLLOWING IS SUBMITTED WITH THE HOPE IT WILL HELP YOU IN YOUR STUDY AND APPRAISAL OF THIS SUBJECT.

THERE ARE SEVERAL FACTORS TO BE CONSIDERED IN EVALUATING THE USE OF A MODIFIED PLAN IN THE CONSTRUCTION OF A SCHOOL. ALTHOUGH THE DISTRICT IN THIS CASE OBTAINED A SCHOOL BUILDING AT SOME SAVING IN ARCHITECTURAL FEES, THERE ARE A NUMBER OF OTHER CONSIDERATIONS. PROBABLY ONLY AT SOME FUTURE DATE WILL A FINAL DETERMINATION BE MADE AS TO WHETHER THIS MODIFIED PLAN IS SERVING THE NEEDS OF THE DISTRICT AS WELL AS A COMPLETELY NEW DESIGN INTENDED FOR THAT SPECIFIC SITE.

ONE WOULD NEED TO CONSIDER HOW WELL THIS MODIFIED DESIGN HAS INCORPORATED THE LATEST THINKING IN REGARD TO (1) LARGER INSTRUCTIONAL WORK AREAS, (2) PROVISIONS FOR EASY PARTITION REMOVAL, AND (3) FUTURE EXPANSION OF CLASSROOMS. AFTER THESE SCHOOLS HAVE BEEN USED FOR A PERIOD OF YEARS AND NEW EDUCATIONAL TRENDS HAVE BEEN ESTABLISHED IT WOULD BE WORTHWHILE TO EXAMINE HOW WELL THESE MODIFIED PLAN SCHOOLS HAVE BEEN ABLE TO MEET THE NEEDS OF THE DISTRICT IN INCORPORATING THE NEWER IDEAS AS THEY WERE DISCOVERED AND ADAPTED.

BECAUSE OF CHANGING EDUCATIONAL TECHNIQUES, SCHOOL BUILDINGS NEED TO BE EXAMINED CRITICALLY TO DETERMINE HOW THEY MAY BE IMPROVED. IF A DESIGN FLAW IN ONE SCHOOL IS FOUND AFTER USING THE SCHOOL FOR A TIME, THIS FLAW SHOULD BE CORRECTED WHEN DESIGNING THE NEXT SCHOOL IN A DISTRICT. THIS IS NOT AS EASILY DONE WITH A MODIFIED PLAN AS IT IS WITH A NEW DESIGN.

FROM AN ARCHITECTS POINT OF VIEW, IT IS FELT THAT THE MEADOWDALE ELEMENTARY SCHOOL SUFFERS SOMEWHAT AS TO ORIENTATION. BY USING THE MODIFIABLE PLAN IT WAS NECESSARY TO ORIENT THE MULTI-PURPOSE BUILDING ON THE SITE SO THAT THE FIRST ELEMENTS SEEN FROM THE MAIN APPROACH TO THE BUILDING ARE THE KITCHEN AND BOILER ROOM, WHICH ADJOIN THE MULTI-PURPOSE BUILDING ON THE EAST SIDE. WE FEEL THIS UNFORTUNATE SITUATION COULD HAVE BEEN REMEDIED HAD THE ARCHITECT BEEN ABLE TO DESIGN THE SCHOOL WITH MORE FLEXIBILITY REGARDING THE LOCATION AND SIZE OF THE UNITS.

ANOTHER FACTOR THAT WOULD HAVE BEEN CONSIDERED IN A NEW DESIGN WAS THE THOUGHT OF A MORE HARMONIUS ARCHITECTURAL EXPRESSION BETWEEN THE MEADOWDALE ELEMENTARY AND THE MEADOWDALE JUNIOR HIGH SCHOOL, WHICH IS LOCATED JUST TO THE SOUTH OF THE ELEMENTARY SCHOOL ACROSS 168TH STREET. THE ORIGINAL SCHOOL, CEDAR VALLEY, WAS NOT DESIGNED TO TIE IN ARCHITECTURALLY WITH ANY NEARBY BUILDING. UPON RE-USE OF THIS BASIC DESIGN AT MEADOWDALE, THERE WAS NO OPPORTUNITY TO USE MATERIALS OR ARCHITECTURAL EXPRESSIONS SIMILAR TO THOSE EMPLOYED IN THE JUNIOR HIGH PLANT. SOME ARCHITECTURAL LATITUDE IN THIS DIRECTION WOULD HAVE MADE POSSIBLE A MORE HARMONIOUS FEELING IN DESIGN BETWEEN THESE TWO SCHOOL BUILDINGS LOCATED ACROSS THE STREET FROM EACH OTHER.

ANOTHER AREA THAT SUFFERED SOMEWHAT BY USING THE MODIFIABLE PLAN WAS THE BEST USE OF EXISTING TREES, GROUND COVER, AND NATURAL FINISH GRADE ELEVATIONS. IN BEING UNABLE TO DESIGN THE DIFFERENT UNITS AROUND THE SAVING OF NATURAL GROWTH, GROVES OF TREES AND GROUND COVER WERE LOST. THIS WAS MOST NOTICABLE AT THE CHASE LAKE SITE WHERE MANY FINE GROUPS OF TREES COULD HAVE BEEN SAVED HAD THERE BEEN MORE FREEDOM IN THE PLACEMENT OF THE VARIOUS UNITS. IN THE LONG RUN THIS COULD BE AN EXPENSE ITEM AS THERE MAY BE ADDITIONAL COST TO PLANT SHRUBBERY AND TREES TO SUPPLANT THOSE LOST.

THESE ARE A FEW OF THE FACTORS BROUGHT TO MIND DURING THE PLANNING AND CONSTRUCTION OF THE LAST TWO SCHOOLS. IT SEEMS THAT THESE QUESTIONS SHOULD BE WEIGHED CAREFULLY BEFORE A FINAL CONCLUSION CAN BE REACHED REGARDING THE MERITS OF THE MODIFIABLE PLAN VERSUS THE FRESH APPROACH TO EACH PROJECT.

I AM HOPEFUL THAT YOUR STUDY WILL BRING FACTS TO LIGHT THAT WILL MAKE IT POSSIBLE TO EVALUATE IN A MORE REALISTIC WAY THE MERITS AND DRAWBACKS OF THE MODIFIABLE PLAN AS IT APPLIES TO THE ELEMENTARY SCHOOL.

VERY TRULY YOURS,

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS

Robert A. Bezzo

ROBERT A. BEZZO

RAB :BD

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
FORMERLY
DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E. 115 FOURTH AVENUE SOUTH • EDMONDS • WASHINGTON • PROSPECT 6-2929

NOVEMBER 16, 1964

MR. BILL FORTUNE, PURCHASING AGENT
EDMONDS SCHOOL DISTRICT NO. 15
3800 - 196TH S.W.
ALDERWOOD MANOR, WASHINGTON

DEAR BILL:

ENCLOSED HEREWITH IS THE ROUGH DRAFT OF YOUR SUMMARY AND CONCLUSIONS PORTION OF YOUR RESEARCH PROJECT, WITH JUST A FEW NOTES AND MODIFICATIONS THAT YOU MAY WANT TO CONSIDER. IT APPEARS TO ME THAT YOU HAVE DONE A GOOD JOB IN PREPARING YOUR PROJECT, AND IF I CAN HELP YOU FURTHER, PLEASE DO NOT HESITATE TO CALL.

VERY TRULY YOURS,

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS

ROBERT A. BEZZO

RAB:BD

ENCL.

STATE OF WASHINGTON

# Superintendent of Public Instruction

Olympia

LOUIS BRUNO
STATE SUPERINTENDENT

December 2, 1964

Mr. William Fortune, Purchasing Agent
Edmonds School District No. 15
3800 - 196th Southwest
Lynnwood, Washington

Dear Bill;

Your willingness to analyze the data for the Cedar Valley, Meadowdale and Chase Lake schools should help, materially, in resolving the question of the advisability of using stock or modifiable plans for school construction. Up to this time there has been a great deal of conjecture based largely on the hope that some means can be found to save local and state funds. Heretofore, the information has lacked the objectivity necessary to draw definite conclusions.

One of the problems, it seems to me, is relating the costs recorded at one period to those at a later date. Obviously inflation alone will dictate higher and higher costs even if the plans are exactly the same and the sites are identical.

From the standpoint of the state we are interested in developing plans that have sufficient flexibility to be readily adaptable to changes in the educational programs that will undoubtedly evolve in the next 5 or 10 years.

We are also concerned that a reasonable affinity of parts be preserved so that the library, multipurpose room and office are equally accessible from all units.

Other basic questions are: What types of units are best suited to modifiable plans? Viz., campus plans, single story, multiple story, compact, etc. How can the exterior fit the esthetic requirements of the surroundings? Is the same exterior applicable on all sites? How can a plan be adapted to meet the requirements for different-sized schools? We cannot afford to build all the core facilities for schools of 10 or 12 rooms that 20-room schools require. Do stock plans and specifications freeze materials so that new discoveries cannot be used? What materials lend themselves best to modifiable plans?

As you well know, there has been an interest in this subject for atleast 15 years and many bills have been submitted to recent legislatures. It is our hope, therefore, that your thesis can serve as the basis for a report to the

legislature on the second phase of the study authorized by the State Board of Education in 1959.

Certainly, if there is any way to expedite school construction and also save money, we are all interested. Of course, no plan will be successful unless it is acceptable to the local board of directors that has considerable autonomy in our society. Obviously, the concern is for better schools for the building dollar and not for cheaper ones. We must still build buildings that are easy to maintain and ones that will serve our needs for the next 50 years.

Your findings will be of interest to all of us and will undoubtedly have a great effect on future thinking about school design.

Any information or material we have, in which you are interested, will be gladly shared.

Sincerely,

John H. Hulvey
Consultant for Facilities
and Organization

JHH:va

# APPENDIX B

## BID TABULATIONS AND LETTERS OF INTENT

DAN F. MILLER, A.I.A. & ASSOCIATES, ARCHITECTS

406 MAIN STREET EDMONDS, WASHINGTON

CEDAR VALLEY ELEMENTARY SCHOOL - - - - - - - EDMONDS, WASHINGTON

GENERAL WORK

BID TABULATION

| BIDDER<br>ADDRESS<br>TELEPHONE | VENNE BEAUCHAMP<br>2934 BROADWAY<br>EVERETT, WASH.<br>AL 9-5136 | EDMONDS CONST.CO.<br>106 MAIN STREET<br>EDMONDS, WASH.<br>PR 8-2164 | ~~GLACIER CONST.~~ Kosmo. CO.<br>5536 CONISTONE RD.<br>SEATTLE, WASH.<br>LA 3-2987 | JARDEEN BROS.<br>1240 S.SPRAGUE<br>TACOMA, WASH. | KORSMO BROS.<br>5944 LAKE GROVE AVE. S.W.<br>TACOMA, WASH. |
|---|---|---|---|---|---|
| BASIC BID | 391,500 | 351,750 | 398,708 | | |
| ALTERNATE NO. 1<br>BUILT-UP ROOF & SYNTHETIC RUBBER FLASH. | - 13,535 | - 9,105 * | - 5,910 | | |
| ALTERNATE NO. 2<br>LIGHTWEIGHT CONC. & RIGID INSULATION | 650 | no | 3,623 | | |
| ALTERNATE NO. 3<br>WINDOWS, FRAMES & SHADES | 4,194 | 4,005 ? | 2,095 | | |
| ALTERNATE NO. 4<br>CLASSROOM SKYLIGHTS & SHADES | 2,332 | 1,650 — | 1,818 | | |
| ALTERNATE NO. 5<br>CEDAR & FIR INTERIORS | 1,691 | 1,840 — | 1,882 | | |
| ALTERNATE NO. 6<br>VINYL ASBESTOS TILE | 4,391 | 4,042 — | 4,192 | | |
| ALTERNATE NO. 7<br>CEDAR FENCES | 445 | 634 — | 880 | | |
| ALTERNATE NO. 8<br>MC. FINISH ON MULTI-PURPOSE BUILDING | 2,795 | 2,691 — | 3,890 | | |
| ALTERNATE NO. 9<br>MULTI-PURPOSE FOLDING PARTITION | 8,669 | 4,800 — | 8,175 | | |
| ALTERNATE NO. 10<br>ACCORDIAN-TYPE FOLDING PARTITION | 1,360 | 1,600 — | 1,460 | | |
| ALTERNATE NO. 11<br>CONCRETE CURBS | 1,745 | 1,150 — | 1,245 | | |
| SUBSTITUTE ASPHALT PAVING FOR GRAVEL | 1,616 | 1,600 — | 1,760 | | |
| ALTERNATE NO. 13<br>STAGE DRAPERY & HWD. | 1,404 | 1,350 — | 1,676 | | |
| ALTERNATE NO. 14<br>BASKETBALL BACKSTOPS | 362 | 350 — | 448 | | |
| ALTERNATE NO. 15<br>ACOUSTIC TREATMENT MULTI-PURPOSE BLDG. | 654 | 1,020 — | 710 | | |
| ALTERNATE NO. 16<br>HARDBOARD WAINSCOTS | - 1,317 | - 1,216 — | - 1,565 | | |
| ALTERNATE NO. 17<br>LIGHT CONTROL DRAPERIES, BLINDS, AND SHADES | 1,896 | 2,032 + | 2,197 | | |
| ALTERNATE NO. 18<br>ASPHALT PAVING OF PLAY-COURTS & WALKWAYS | 3,031 | + 2,175 ? | 2,298 | | |
| ALTERNATE NO. 19<br>SCHOOL SIGN | 398 | 471 - | 670 | | |
| ALTERNATE NO. 20<br>LANDSCAPING | 15,797 | 5,715 — | 5,825 | | |
| ALTERNATE NO. 21<br>PUMICE BLOCK WALLS | no | - 250 — | + 11,210 | | |
| ALTERNATE NO. 22<br>PAINTING SOFFITS & COLUMNS | 1,870 | 2,900 — | 1,900 | | |
| ALTERNATE NO. 23<br>LANDSCAPING DESIGNATED "B" | 5,300 | 3,436 — | 3,228 | | |
| ALTERNATE NO. 24<br>REG. PUMIC BLK WALLS, & ELIM. OF PARABS. PENETRATED BY OPENINGS | - 2,500 | - 2,900 — | + 7,217 | | |

D A N F. M I L L E R, A.I.A. & A S S O C I A T E S, A R C H I T E C T S

406 MAIN STREET EDMONDS, WASHINGTON

C E D A R V A L L E Y E L E M E N T A R Y S C H O O L - - - - E D M O N D S, W A S H I N G T O N

G E N E R A L W O R K

B I D T A B U L A T I O N

| BIDDER<br>ADDRESS<br>TELEPHONE | GEO. E. TEUFEL<br>7329 4th Ave. S.<br>SEATTLE, WASH.<br>PA 3-4400 | STRAND, INC.<br>1801 NO. 34th<br>SEATTLE, WASH.<br>ME 2-1975 | B.F.TURNBULL, INC.<br>4351 LEARY WAY, N.W.<br>SEATTLE, WASHINGTON<br>SU 4-2343 | WICK CONSTRUCTION CO.<br>720 N. 35th<br>SEATTLE, WASHINGTON | |
|---|---|---|---|---|---|
| BASIC BID | 394,500 | 390,300 | 400,000 | 392,000 | |
| ALTERNATE NO. 1<br>BUILT-UP ROOF &<br>SYNTHETIC RUBBER FLASH. | + 6,035 | - 5,980 | - 13,000 | - 10,000 | YES |
| ALTERNATE NO. 2<br>LIGHTWEIGHT CONC. &<br>RIGID INSULATION | - 3,070 | - 3,800 | - 226 | - 4,000 | |
| ALTERNATE NO. 3<br>WINDOWS, FRAMES & SHADES | + 4,183 | 4,160 | + 4,176 | - 4,200 | No - |
| ALTERNATE NO. 4<br>CLASSROOM SKYLIGHTS &<br>SHADES | 2,289 | 2,060 | 1,680 | 750 | No |
| ALTERNATE NO. 5<br>CEDAR & FIR INTERIORS | 2,343 | 2,270 | 1,760 | 1,660 | No |
| ALTERNATE NO. 6<br>VINYL ASBESTOS TILE | 3,954 | 3,780 | 4,080 | 4,000 | ? |
| ALTERNATE NO. 7<br>CEDAR FENCES | 518 | 870 | 1,859 | 380 | No |
| ALTERNATE NO. 8<br>MC. FINISH ON MULTI-<br>PURPOSE BUILDING | + 2,785 | 2,660 | 2,919 | 3,400 | No |
| ALTERNATE NO. 9<br>MULTI-PURPOSE FOLDING<br>PARTITION | 8,353 | 5,030 | 4,855 | 5,500 | No |
| ALTERNATE NO. 10<br>ACCORDIAN-TYPE FOLDING<br>PARTITION | 1,569 | 1,370 | 1,390 | 1,360 | No |
| ALTERNATE NO. 11<br>CONCRETE CURBS | 2,127 | 1,850 | 3,052 | 1,540 | No |
| ALTERNATE NO. 12<br>SUBSTITUTE ASPHALT<br>PAVING FOR GRAVEL | 1,547 | 1,590 | 1,533 | 1,600 | No |
| ALTERNATE NO. 13<br>STAGE DRAPERY & HWD | 1,352 | 1,390 | 1,376 | 1,403 | No |
| ALTERNATE NO. 14<br>BASKETBALL BACKSTOPS | 1,708 | illegible | 360 | 390 | No |
| ALTERNATE NO. 15<br>ACOUSTIC TREATMENT<br>MULTI-PURPOSE BLDG. | 1,248 | 1,020 | 885 | 669 | No |
| ALTERNATE NO. 16<br>HARDBOARD WAINSCOTS | - 1,052 | - 1,520 | - 1,543 | - 2,000 | No |
| ALTERNATE NO. 17<br>LIGHT CONTROL DRAPERIES<br>BLINDS, AND SHADES | + 2,030 | 2,060 | + 3,267 | + 2,000 | YES..? |
| ALTERNATE NO. 18<br>ASPHALT PAVING OF PLAY-<br>COURTS & WALKWAYS | 2,312 | 2,290 | 2,035 | 2,000 | ? |
| ALTERNATE NO. 19<br>SCHOOL SIGN | 400 | illegible | 383 | 250 | No |
| ALTERNATE NO. 20<br>LANDSCAPING | 6,400 | 6,illegible | 5,500 | 5,700 | No |
| ALTERNATE NO. 21<br>PUMICE BLOCK WALLS | + 1,850 | 2,070 | 1,430 | nc | No |
| ALTERNATE NO. 22<br>PAINTING SOFFITS &<br>COLUMNS | 1,785 | 1,780 | 1,785 | 1,760 | No ? |
| ALTERNATE NO. 23<br>LANDSCAPING DESIGNATED<br>"B" | 3,774 | 3,c13 | 3,334 | 3,000 | No |
| ALTERNATE NO. 24<br>REG. PUMICE BLK WALLS,<br>& ELIM. OF PARAPS.<br>PENETRATED BY OPENINGS | - 2,500 | - 4,460 | + 1,500 | - 3,000 | No |

DAN F. MILLER, A.I.A. & ASSOCIATES, ARCHITECTS

406 MAIN STREET EDMONDS, WASHINGTON

CEDAR VALLEY ELEMENTARY SCHOOL-----EDMONDS, WASHINGTON

GENERAL WORK

BID TABULATION

| BIDDER<br>ADDRESS<br>TELEPHONE | MC DONALD CONST.<br>120 FAIRVIEW AVE.N.<br>SEATTLE, WASHINGTON<br>MA 4-3543 | METROPOLITAN CONST.CO.<br>1008 BROADWAY<br>EVERETT, WASHINGTON<br>AL 9-4300 | NEWLAND CONST. CO.<br>P.O. BOX 958<br>EVERETT, WASHINGTON<br>AL 9-9191 | SHAEFFER CONST.<br>3409 EVERETT AVE.<br>EVERETT, WASH.<br>AL 9-1151 | STEVENS CONS<br>2917 FUHRMAN<br>SEATTLE,WASH |
|---|---|---|---|---|---|
| BASIC BID | 384,347 | | 398,778 | | |
| ALTERNATE NO. 1<br>BUILT-UP ROOF &<br>SYNTHETICRUBBER FLASH. | + 17,500 | | - 5,694 | | |
| ALTERNATE NO. 2<br>LIGHTWEIGHT CONC. &<br>RIGID INSULATION | + 5,725 | | - 2,000 | | |
| ALTERNATE NO. 3<br>WINDOWS FRAMES & SHADES | 5,450 | | 4,112 | | |
| ALTERNATE NO. 4<br>CLASSROOM SKYLIGHTS &<br>SHADES | 4,110 | | 1,700 | | |
| ALTERNATE NO. 5<br>CEDAR & FIR INTERIORS | 1,480 | | 2,170 | | |
| ALTERNATE NO. 6<br>VINYL ASBESTOS TILE | 3,999 | | 4,192 | | |
| ALTERNATE NO. 7<br>CEDAR FENCES | 800 | | 550 | | |
| ALTERNATE NO. 8<br>MC. FINISH ON MULTI-<br>PURPOSE BUILDING | 2,550 | | 2,771 | | |
| ALTERNATE NO. 9<br>MULTI-PURPOSE FOLDING<br>PARTITION | 3,995 | | 8,300 | | |
| ALTERNATE NO. 10<br>ACCORDIAN-TYPE FOLDING<br>PARTITION | 1,410 | | 1,300 | | |
| ALTERNATE NO. 11<br>CONCRETE CURBS | 1,956 | | 1,550 | | |
| ALTERNATE NO. 12<br>SUBSTITUTE ASPHALT<br>PAVING FOR GRAVEL | 1,595 | | 1,600 | | |
| ALTERNATE NO. 13<br>STAGE DRAPERY & HWD. | 1,775 | | 1,360 | | |
| ALTERNATE NO. 14<br>BASKETBALL BACKSTOPS | 349 | | 370 | | |
| ALTERNATE NO. 15<br>ACOUSTIC TREATMENT<br>MULTI-PURPOSE BLDG. | 1,452 | | 790 | | |
| ALTERNATE NO. 16<br>HARDBOARD WAINSCOTS | - 1,350 | | - 1,485 | | |
| ALTERNATE NO. 17<br>LIGHT CONTROL DRAPERIES,<br>BLINDS, AND SHADES | 3,443 | | 2,060 | | |
| ALTERNATE NO. 18<br>ASPHALT PAVING OF PLAY-<br>COURTS & WALKWAYS | 2,623 | | 2,035 | | |
| ALTERNATE NO. 19<br>SCHOOL SIGN | 569 | | 460 | | |
| ALTERNATE NO. 20<br>LANDSCAPING | 14,400 | | 6,520 | | |
| ALTERNATE NO. 21<br>PUMICE BLOCK WALLS | + 2,500 | | + 5,875 | | |
| ALTERNATE NO. 22<br>PAINTING SOFFITS &<br>COLUMNS | 2,400 | | 1,850 | | |
| ALTERNATE NO. 23<br>LANDSCAPING DESIGNATED<br>"B" | 5,100 | | 3,700 | | |
| ALTERNATE NO. 24<br>REG. PUMICE BLK. WALLS,<br>& ELIM. OF PARABS.<br>PENETRATED BY OPENINGS | + 8,200 | | + 7,560 | | |

DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15
PROJECT #345-25-6195

GENERAL

| BIDDER | EDMONDS CONST. CO. | PUGET SOUND BLDRS. | VANDIVORT CONST., INC. |
|---|---|---|---|
| ADDRESS | P.O. BOX 524 LYNNWOOD, WASH. | 4110 RUCKER AVE. EVERETT, WASH. | P.O. BOX 100 BELLEVUE, WN. |
| TELEPHONE | PR 8-2164 | AL 9-1302 | GL 4-4774 |
| BASIC BID | $ 358,000.00 | $ 367,000.00 | $ 367,500.00 |
| ALTERNATE A-1: EARTHWORK BEYOND 30' OF BUILDING LINES | + 650.00 | + 600.00 | + 620.00 |
| ALTERNATE A-2: BLACKTOP OR CRUSHED ROCK PARKING AREAS | + 2,500.00 | + 1,400.00 | + 2,280.00 |
| ALTERNATE A-3: ASPHALT PAVING PLAY COURTS | + 2,850.00 | + 2,400.00 | + 2,880.00 |
| ALTERNATE A-4: WOOD CABINETS | + 550.00 | - 500.00 | NO BID |
| ALTERNATE A-5: OMIT CABINETS | - 2,620.00 | - 2,600.00 | NO BID |
| ALTERNATE A-6: ASPHALT TILE FLOORING | - 1,850.00 | - 2,000.00 | - 1,880.00 |
| ALTERNATE A-7: PLAYGROUND AREA GRAD. | + 2,900.00 | + 2,900.00 | + 2,950.00 |
| ALTERNATE A-8: MARBLECRETE FINISH ON MULTI-PURPOSE BUILD. | + 3,720.00 | + 4,000.00 | + 4,080.00 |
| ALTERNATE A-9: MULTI-PURPOSE FOLDING PARTITION | + 7,500.00 | + 300.00 | + 7,025.00 |
| ALTERNATE A-10: ACCORDIAN-TYPE FOLDING DOOR | + 280.00 | + 1,800.00 | + 265.00 |
| ALTERNATE A-11: LIGHT CONTROL DRAP., BLINDS & SHADES | + 2,800.00 | + 2,700.00 | + 2,880.00 |
| ALTERNATE A-12: SCHOOL SIGN | + 650.00 | + 300.00 | + 324.00 |
| ALTERNATE A-13: "SON-NEL" CHALKBOARD & TACKBOARD | - 700.00 | - 700.00 | NO BID |
| ALTERNATE A-14: BASKETBALL BACKSTOPS | + 950.00 | + 1,000.00 | + 972.00 |
| ALTERNATE A-15: OMIT PAINTING SOFFITS AND COLUMNS | - 1,300.00 | - 1,000.00 | - 494.00 |
| ALTERNATE A-16: KITCHEN EQUIPMENT | + 1,990.00 | + 2,000.00 | + 1,945.00 |
| ALTERNATE A-17: CONCRETE & BRICK BENCHES & WASHED GRAVEL | - 680.00 | - 300.00 | - 564.00 |

MEADOWDALE ELEMENTARY SCHOOL - EDMONDS SCHOOL DISTRICT #15 - BID TABULATION

GENERAL

| BIDDER | EDMONDS CONST. CO. | PUGET SOUND BLDRS. | VANDIVORT CONST., INC. |
|---|---|---|---|
| ADDRESS | P.O. BOX 524<br>LYNNWOOD, WASH. | 4110 RUCKER AVE.<br>EVERETT, WASH. | P.O. BOX 100<br>BELLEVUE, WASH. |
| TELEPHONE | PR 8-2164 | AL 9-1332 | GL 4-774 |
| ALTERNATE A-18:<br>OMIT MARBLECRETE ON PUMICE BLOCK WALLS, UNIT E. | - $ 1,190.00 | - $ 1,200.00 | - $ 825.00 |
| ALTERNATE A-19:<br>ACOUSTIC PLASTER IN INVERTED PARABOLOIDS | - 4,800.00 | - 6,000.00 | - 3,720.00 |
| ALTERNATE A-20:<br>MULTI-PURPOSE METAL FOLDING PARTITION | NO BID | + 2,826.00 | + 2,700.00 |

DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15
PROJECT #345-25-6195

GENERAL

| BIDDER | PUGET CONST. CO. | NEWLAND CONST.CO. | WICK CONST. CO. | BRAZIER CONST. COMPANY |
|---|---|---|---|---|
| ADDRESS | 1811 SO. BUSH PL. SEATTLE, 44, WASH. | P.O.BOX 958 EVERETT, WASH. | 720 N. 35TH SEATTLE 3, WN. | [illegible] WEST SEATTLE, WASH. |
| TELEPHONE | EA 5-6363 | AL 9-9191 | ME 2-4300 | AT 45123 |
| BASIC BID | $ 379,280.00 | $ 385,515.00 | $ 388,130.00 | $ 388,600.00 |
| ALTERNATE A-1: EARTHWORK BEYOND 30' OF BUILDING LINES | + 1,900.00 | + 800.00 | + 600.00 | + 740.00 |
| ALTERNATE A-2: BLACKTOP OR CRUSHED ROCK PARKING AREAS | + 2,300.00 | + 2,520.00 | + 2,400.00 | + 2,840.00 |
| ALTERNATE A-3: ASPHALT PAVING PLAY COURTS | + 2,900.00 | + 2,880.00 | + 3,100.00 | + 3,100.00 |
| ALTERNATE A-4: WOOD CABINETS | + 500.00 | - 300.00 | + 3,000.00 | + 510.00 |
| ALTERNATE A-5: OMIT CABINETS | - 2,600.00 | - 2,500.00 | - 2,700.00 | - 2,600.00 |
| ALTERNATE A-6: ASPHALT TILE FLOORING | - 1,800.00 | - 1,800.00 | - 1,900.00 | - 1,900.00 |
| ALTERNATE A-7: PLAYGROUND AREA, GRAD. | + 4,300.00 | + 3,000.00 | + 3,000.00 | + 2,940.00 |
| ALTERNATE A-8: MARBLECRETE FINISH ON MULTI-PURPOSE BUILD. | + 3,500.00 | + 3,680.00 | + 4,000.00 | + 3,450.00 |
| ALTERNATE A-9: MULTI-PURPOSE FOLDING PARTITION | + 4,400.00 | + 6,500.00 | + 4,500.00 | + 5,000.00 |
| ALTERNATE A-10: ACCORDIAN-TYPE FOLDING DOOR | + 260.00 | + 275.00 | + 300.00 | + 275.00 |
| ALTERNATE A-11: LIGHT CONTROL DRAP., BLINDS & SHADES | + 2,850.00 | + 2,900.00 | + 3,000.00 | + 2,800.00 |
| ALTERNATE A-12: SCHOOL SIGN | + 675.00 | + 300.00 | + 300.00 | + 430.00 |
| ALTERNATE A-13: "SON-NEL" CHALKBOARD & TACKBOARD | + 250.00 | NO BID | NO BID | - 400.00 |
| ALTERNATE A-14: BASKETBALL BACKSTOPS | + 970.00 | + 980.00 | + 1,000.00 | + 935.00 |
| ALTERNATE A-15: OMIT PAINTING SOFFITS AND COLUMNS | - 900.00 | - 500.00 | - 500.00 | - 470.00 |
| ALTERNATE A-16: KITCHEN EQUIPMENT | + 1,950.00 | + 1,970.00 | + 1,900.00 | + 1,620.00 |
| ALTERNATE A-17: CONCRETE & BRICK BENCHES & WASHED GRAVEL | - 150.00 | - 1,000.00 | - 650.00 | - 630.00 |
| ALTERNATE A-18: OMIT MARBLECRETE ON PUMICE BLK. WALLS, UNIT E. | - 1,350.00 | - 1,300.00 | - 1,200.00 | - 1,300.00 |

DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15
PROJECT #345-25-6195

GENERAL

| BIDDER | PUGET CONST. CO. | NEWLAND CONST. CO. | WICK CONST. CO. | BRAZIER CONST. CO. |
|---|---|---|---|---|
| ADDRESS<br>TELEPHONE | 1811 SO.BUSH PL.<br>SEATTLE, 44 WASH.<br>EA 5-6363 | P.O. BOX 958<br>EVERETT, WASH.<br>AL -9-9191 | 720 N. 35TH<br>SEATTLE 3, WN.<br>ME 2-4300 | 4040-23RD WEST<br>SEATTLE, WASH.<br>AT 4-5123 |
| ALTERNATE A-19:<br>ACOUSTIC PLASTER IN<br>INVERTED PARABOLOIDS | - $5,000.00 | $ - 5,000.00 | $- 4,900.00 | $ - 3,550.00 |
| ALTERNATE A-20:<br>MULTI-PURPOSE METAL<br>FOLDING PARTITION | NO BID | + 4,100.00 | NO BID | + 2,600.00 |

DAN F. MILLER A.I.A. & ACSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15
PROJECT #345-25-6195

GENERAL

| BIDDER | FARWEST CONST. CO. | WESTERN STATES CONST. COMPANY | O.E.TURNQUIST | BAUGH CONST. CO. |
|---|---|---|---|---|
| ADDRESS | 608 N.W. 44TH | 15611 N.E. 40TH | 1305 REPUBL.CAN | 922 POPULAR PL. SO. |
| TELEPHONE | SEATTLE, WASH. SU 2-2100 | BELLEVUE, WASH. GL 4-2616 | SEATTLE, WASH. MA 3-6455 | SEATTLE, WASH. EA 5-2100 |
| BASIC BID | $ 397,675.00 | $414,528.00 | $422,381.00 | $ 422,000.00 |
| ALTERNATE A-1: EARTHWORK BEYOND 30' OF BUILDING LINES | + 682.00 | + 770.00 | + 600.00 | + 1,000.00 |
| ALTERNATE A-2: BLACKTOP OR CRUSHED ROCK PARKING AREAS | + 2,660.00 | + 1,450.00 | + 1,240.00 | + 3,100.00 |
| ALTERNATE A-3: ASPHALT PAVING PLAY COURTS | + 2,750.00 | + 2,400.00 | + 3,000.00 | + 3,000.00 |
| ALTERNATE A-4: WOOD CABINETS | + 2,798.00 | + 1,480.00 | + 600.00 | + 500.00 |
| ALTERNATE A-5: OMIT CABINETS | - 2,620.00 | - 2,616.00 | - 2,650.00 | - 2,700.00 |
| ALTERNATE A-6: ASPHALT TILE FLOORING | - 1,790.00 | - 2,078.00 | - 1,950.00 | - 1,860.00 |
| ALTERNATE A-7: PLAYGROUND AREA, GRAD. | + 1,250.00 | + 2,880.00 | + 2,900.00 | + 3,000.00 |
| ALTERNATE A-8: MARBLECRETE FINISH ON MULTI-PURPOSE BUILD. | + 3,830.00 | + 4,155.00 | + 3,730.00 | + 4,000.00 |
| ALTERNATE A-9: MULTI-PURPOSE FOLDING PARTITION | + 4,580.00 | + 6,885.00 | + 4,300.00 | + 5,200.00 |
| ALTERNATE A-10: ACCORDIAN-TYPE FOLDING DOOR | + 265.00 | + 260.00 | + 275.00 | + 265.00 |
| ALTERNATE A-11: LIGHT CONTROL DRAPERIES, BLINDS & SHADES | + 2,830.00 | + 2,996.00 | + 3,000.00 | + 2,850.00 |
| ALTERNATE A-12: SCHOOL SIGN | + 300.00 | + 700.00 | + 450.00 | + 820.00 |
| ALTERNATE A-13: "SON-NEL" CHALKBOARD & TACKBOARD | - 290.00 | NO BID | NO BID | - 700.00 |
| ALTERNATE A-14: BASKETBALL BACKSTOPS | + 950.00 | + 908.00 | + 950.00 | + 950.00 |
| ALTERNATE A-15: OMIT PAINTING SOFFITS & COLUMNS | - 1,390.00 | - 1,705.00 | - 1,350.00 | - 1,750.00 |
| ALTERNATE A-16: KITCHEN EQUIPMENT | + 1,925.00 | + 2,279.00 | + 1,900.00 | + 1,930.00 |
| ALTERNATE A-17: CONCRETE & BRICK BENCHES & WASHED GRAVEL | - 720.00 | - 800.00 | - 580.00 | - 1,020.00 |
| ALTERNATE A-18: OMIT MARBLECRETE ON PUMICE BLK. WALLS, UNIT E. | - 1,315.00 | - 745.00 | - 1,450.00 | - 750.00 |

DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15
PROJECT #345-25-6195

GENERAL

| BIDDER | FARWEST CONST.CO. | WESTERN STATES CONSTRUCTION CO. | O. E. TURNQUIST | BAUGH CONST. CO. |
|---|---|---|---|---|
| ADDRESS | 608 N.W. 44TH SEATTLE, WASH. | 15611 N.E. 40TH BELLEVUE, WASH. | 1305 REPUBLICAN SEATTLE, WASH. | 922 POPULAR PL.SO. SEATTLE, WASH. |
| TELEPHONE | SU 2-2100 | GL 4-2616 | MA 3-8455 | EA 5-2100 |
| ALTERNATE A-19: ACOUSTIC PLASTER IN INVERTED PARABOLOIDS | - $ 4,900.00 | $ - 3,683.00 | $ - 6,550.00 | $ - 4,700.00 |
| ALTERNATE A-20: MULTI-PURPOSE METAL FOLDING PARTITION | + 2,700.00 | + 2,721.00 | + 2,541.00 | + 2,700.00 |

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
CHASE LAKE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

GENERAL

| BIDDER | STEVENS CONST. CO. | VANDIVORT CONST. | EDMONDS CONST. CO. |
|---|---|---|---|
| ADDRESS | 19546 - 53RD N.E. SEATTLE, WASH. | BOX 100 BELLEVUE, WASH. | P.O. BOX 524 LYNNWOOD, WASHINGTON |
| TELEPHONE | EM 4-0212 | GL 4-1774 | PR 8-2164 |
| BASIC BID | CONTRACTOR DID NOT BID | $ 375,000.00 | $ 364,000.00 |
| ALTERNATE A-1: EARTHWORK BEYOND 30' OF BUILDING LINES | NO BID | + 1,100.00 | + 5,450.00 |
| ALTERNATE A-2: CRUSHED ROCK PARK. AREAS | NO BID | + 3,540.00 | + 3,350.00 |
| ALTERNATE A-3: ASPHALT PAVING PLY CRTS. | NO BID | + 2,885.00 | + 3,050.00 |
| ALTERNATE A-4: WOOD CABINETS | NO BID | NO BID | NO BID |
| ALTERNATE A-5: OMIT CABINETS | NO BID | NO BID | NO BID |
| ALTERNATE A-6: ASPHALT TILE FLOORING | NO BID | - 1,593.00 | - 1,650.00 |
| ALTERNATE A-7: ELIMINATE TWO WALKWAY PARABOLOIDS | NO BID | - 554.00 | - 750.00 |
| ALTERNATE A-8: MARBLECRETE FINISH ON MULTI-PURPOSE BUILDING | NO BID | + 3,375.00 | + 3,700.00 |
| ALTERNATE A-9: MULTI-PURPOSE METAL FOLDING PARTITION | NO BID | + 2,900.00 | + 2,950.00 |
| ALTERNATE A-10: ACCORDIAN-TYPE FOLDING DOOR | NO BID | + 310.00 | + 310.00 |
| ALTERNATE A-11: LIGHT CONTROL DRAPERIES, BLINDS, & SHADES | NO BID | + 3,053.00 | + 2,990.00 |
| ALTERNATE A-12: SCHOOL SIGN | NO BID | + 319.00 | + 605.00 |
| ALTERNATE A-13: SON-NEL CHALKBOARD & TACKBOARD | NO BID | + 376.00 | + 375.00 |
| ALTERNATE A-14: BASKETBALL BACKSTOPS | NO BID | + 930.00 | + 905.00 |
| ALTERNATE A-15: OMIT PAINTING SOFFITS & COLUMNS | NO BID | - 2,598.00 | - 1,500.00 |
| ALTERNATE A-16: KITCHEN EQUIPMENT | NO BID | + 2,055.00 | + 2,083.00 |
| ALTERNATE A-17: CONCRETE & BRICK BENCHES & WASHED GRAVEL | NO BID | - 770.00 | - 680.00 |

CHASE LAKE ELEMENTARY SCHOOL - EDMONDS SCHOOL DISTRICT #15 - BID TABULATION

GENERAL

| BIDDER | STEVENS CONS. CO. | VANDIVORT CONST | EDMONDS CONST. CO. |
|---|---|---|---|
| ADDRESS | 19546 - 53RD N.E. SEATTLE, WASH. | BOX 100 BELLEVUE, WASH. | P.O. BOX 524 LYNNWOOD, WASHINGTON |
| TELEPHONE | EM 4-0212 | GL 4-4774 | PR 8-2164 |
| ALTERNATE A-18: OMIT MARBLECRETE ON PUMICE BLOCK WALLS, UNIT E. | NO BID | - $ 1,059.00 | - $ 760.00 |
| ALTERNATE A-19: ACOUSTIC PLASTER IN INVERTED PARABOLOIDS | NO BID | - 2,800.00 | - 2,600.00 |
| ALTERNATE A-20: PLAYGROUND WIRE FENCING NORTH AREA | NO BID | + 1,897.00 | + 1,835.00 |
| ALTERNATE A-21: PLAYGROUND WIRE FENCING SOUTH AREA | NO BID | + 2,890.00 | + 2,900.00 |
| ALTERNATE A-22: MULTI-PURPOSE VINYL FABRIC FOLDING PARTITION | NO BID | + 995.00 | + 1,280.00 |

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
CHASE LAKE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

GENERAL

| BIDDER | B.F. TURNBULL | PIONEER DEVELOPMENT | KNUDSON-NESS CONST. CO. |
|---|---|---|---|
| ADDRESS | 4351 LEARY WAY N.W. SEATTLE, WASHINGTON | 131 S.W. 156TH SEATTLE 66, WASH. | 413 THIRD AVE. WEST SEATTLE, WASHINGTON |
| TELEPHONE | SU 4-2343 | CH 4-5785 | AT 4-5540 |
| BASIC BID | $ 374,900.00 | $ 365,348.00 | $ 377,600.00 |
| ALTERNATE A-1: EARTHWORK BEYOND 30' OF BUILDING LINES | + 9,900.00 | + 9,523.00 | + 13,000.00 |
| ALTERNATE A-2: CRUSHED ROCK PARK. AREAS | + 3,399.00 | + 2,995.00 | + 3,550.00 |
| ALTERNATE A-3: ASPHALT PAVING PLAY CRTS. | + 2,563.00 | + 2,825.00 | + 3,180.00 |
| ALTERNATE A-4: WOOD CABINETS | NO BID | NO BID | NO BID |
| ALTERNATE A-5: SUIT CABINETS | NO BID | NO BID | NO BID |
| ALTERNATE A-6: ASPHALT TILE FLOORING | - 1,800.00 | - 1,593.00 | - 1,600.00 |
| ALTERNATE A-7: ELIMINATE TWO WALKWAY PARABOLOIDS | - 324.00 | - 823.00 | - 400.00 |
| ALTERNATE A-8: MARBLECRETE FINISH ON MULTI-PURPOSE BUILDING | + 1,631.00 | + 3,602.00 | + 2,600.00 |
| ALTERNATE A-9: MULTI-PURPOSE METAL FOLDING PARTITION | + 3,001.00 | + 3,026.00 | + 2,900.00 |
| ALTERNATE A-10: ACCORDIAN-TYPE FOLDING DOOR | + 300.00 | + 297.00 | + 280.00 |
| ALTERNATE A-11: LIGHT CONTROL DRAPERIES, BLINDS, & SHADES | + 3,030.00 | + 3,168.00 | + 3,050.00 |
| ALTERNATE A-12: SCHOOL SIGN | + 480.00 | + 300.00 | + 400.00 |
| ALTERNATE A-13: SON-NEL CHALKBOARD & TACKBOARD | USED IN BASIC | + 355.00 | + 380.00 |
| ALTERNATE A-14: BASKETBALL BACKSTOPS | + 900.00 | + 936.00 | + 900.00 |
| ALTERNATE A-15: OMIT PAINTING SOFFITS & COLUMNS | - 2,598.00 | - 2,598.00 | - 2,600.00 |
| ALTERNATE A-16: KITCHEN EQUIPMENT | + 2,035.00 | + 2,576.00 | + 2,060.00 |
| ALTERNATE A-17: CONCRETE & BRICK BENCHES & WASHED GRAVEL | - 325.00 | - 513.00 | - 950.00 |

CHASE LAKE ELEMENTARY SCHOOL - EDMONDS SCHOOL DISTRICT #15 - BID TABULATION

GENERAL

| BIDDER | B.F. TUFNBULL | PIONEER DEVELOPMENT | KNUDSON-NESS CONST. CO. |
|---|---|---|---|
| ADDRESS | 4351 LEARY WAY N.W. SEATTLE, WASHINGTON | 131 S.W. 156TH SEATTLE 66, WASH. | 413 THIRD AVE. WEST SEATTLE, WASHINGTON |
| TELEPHONE | SU 4-2343 | CH 4-5785 | AT 4-5540 |
| ALTERNATE A-18: ONIT MARBLECRETE ON PUMICE BLOCK WALLS, UNIT E. | - $ 900.00 | - $ 1,285.00 | - $ 1,070.00 |
| ALTERNATE A-19: ACOUSTIC PLASTER IN INVERTED PARABOLOIDS | - $ 700.00 | - $ 2,820.00 | - $ 4,000.00 |
| ALTERNATE A-20: PLAYGROUND WIRE FENCING-NORTH AREA | + 1,880.00 | + 1,892.00 | + 1,900.00 |
| ALTERNATE A-21: PLAYGROUND WIRE FENCING-SOUTH AREA | + 2,851.00 | + 2,997.00 | + 2,900.00 |
| ALTERNATE A-22: MULTI-PURPOSE VINYL FABRIC FOLDING PARTITION | + 1,117.00 | + 1,052.00 | + 1,000.00 |

D A N F. M I L L E R, A.I.A. & A S S O C I A T E S, A R C H I T E C T S

406 MAIN STREET EDMONDS, WASHINGTON

C E D A R V A L L E Y E L E M E N T A R Y S C H O O L - - - - - E D M O N D S, W A S H I N G T O N

## M E C H A N I C A L W O R K

### B I D T A B U L A T I O N

| BIDDER | CALLAHAN PLGB. | HASKELL CORP. | HART PLUMBING | A.H.MERCHANT CO. | THORGARRD BLG. | STOLLE-FREESE |
|---|---|---|---|---|---|---|
| ADDRESS | 3211 BROADWAY EVERETT, WASH. | 3014 WETMORE AVE. EVERETT, WASH. | 11555-27th N.E. SEATTLE, WASH. | 1633 -12th AVE. SEATTLE, WASH. | 1109 N. 36th St. SEATTLE, WASH. | 24 WINESAP ROAD BOTHELL, WASH. |
| TELEPHONE | AL 2-9550 | AL 9-2108 | EM 2-3700 | EA 4-0835 | ME 2-5491 | PR 8-6576 |
| BASIC BID | 106,703 | 109,971 | 97.379 | 99,813 | 104,592 | 96,735 |
| ALTERNATE NO. 1 WATER SERVICE & FIRE PROTECTION | + 7,860 | 7,585 | 7,702 | 7,803 | 9,026 | 7,255 + |
| ALTERNATE NO. 2 SEPTIC TANK & DRAIN FIELD | 6,100 | 4,134 | 4,708 | 6,100 | 5,255 | 4,052 + |
| ALTERNATE NO. 3 STORM DRAINAGE | 9,514 | 9,455 | 9616 | 11,900 | 10,770 | 7,990 + |
| ALTERNATE NO. 4 GARBAGE DISPOSAL | 460 | 345 | 310 | 200 | 498 | 317 + - |
| ALTERNATE NO. 5 WATER CLOSETS | - 810 | - 26 per W.Closet | - 650 | NC | - 540 | - 456 + |

DAN F. MILLER, A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DIST. #15
PROJECT # 345-25-6195

MECHANICAL

| BIDDER ADDRESS TELEPHONE | BASIC BID | ALTERNATE M-1: WTR. SERVICE & FIRE PROTECTION | ALTERNATE M-2: EXTENSION OF WATER MAIN | ALTERNATE M-3: STORM DRAINAGE | ALTER: M-4: ALTERNATE BOILER MANUFACTURE |
|---|---|---|---|---|---|
| METCALF- GRIMM MECH. CONTRACTORS, INC. 5000 ARSENAL WAY, BREMERTON, WASH. ESSEX 3-4434 | $ 94,825.00 | + $6,700.00 | + $2,000.00 | +$11,500.00 | NO BID |
| STOLL & FREESE PLBG. & HEATING 24 WINESAP ROAD S.W. BOTHELL, WASH. PR 8-6576 | $101,000.00 | + $6,250.00 | + $2,050.00 | +$ 8,800.00 | NO BID |
| PEASE & SONS P.O.BOX 2037 TACOMA 44, WASH. LE 700246 | $101,200.00 | + $5,815.00 | + $1,980.00 | +$11,200.00 | NO BID |
| HART PLBG. & HTG. 11555-27TH N.E. SEATTLE, WASH. EM 2-3700 | $102,370.00 | + $7,420.00 | + $2,640.00 | +$11,000.00 | NO BID |
| LUCKEN PLBG. & HTG. 4051 -22ND AVE. W. SEATTLE, WASH. AT 4-0927 | $102,477.00 | + $8,000.00 | + $3,400.00 | +$12,500.00 | NO BID |
| HASKELL CORP. 3014 WETMORE EVERETT, WASH. AL 9-2108 | $103,354.00 | + $6,719.00 | + $2,289.00 | +$11,198.00 | NO BID |
| UNIV. PLBG. & HTG. 3941 UNIV. WAY, N.E. SEATTLE, WASH. ME 2-9000 | $107,841.00 | + $7,874.00 | + $2,645.00 | +$11,571.00 | NO BID |
| GLANTZ PLBG. & HTG. 2732 HOYT EVERETT, WASH. AL 2-2442 AL 2-2442 | $109,281.00 | + $6,955.00 | + $2,404.00 | +$10,180.00 | NO BID |
| LENT'S, INC. 279 FOURTH ST. BREMERTON, WASH. ESSEX 3-2644 | $110,294.00 | + $7,460.00 | + $1,835.00 | +$ 8,126.00 | NO BID |

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
CHASE LAKE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

## MECHANICAL

| BIDDER | BASIC BID | ALTERNATE M-1: WTR. SERVICE & FIRE PROTECTION | ALTERNATE M-2: STORM DRAINAGE | ALTERNATE M-3: ALTERNATE BOILER MANUFACTURE NAME & PRICE | ALTERNATE M-4: ALTERNATE TEMPERATURE CONTROL MANUFACTURE MANUFACTURE, TYPE OF SYSTEM, PRICE |
|---|---|---|---|---|---|
| LENT'S INC.<br>279 FOURTH ST.<br>BREMERTON, WN. | $ 106,338.00 | +$ 5,990.00 | +$ 16,690.00 | NO BID | NAME: - MINNEAPOLIS-HONEYWELL<br>SYSTEM: - PNEUMATIC<br>- $ 750.00 |
| SAGERS, INC. MECH.<br>4213 RUCKER AVE.<br>EVERETT, WASH.<br>AL 9-6146 | $ 111,400.00 | +$ 8,135.00 | +$ 18,700.00 | RAY OIL BURNER<br>+ $ 1,674.00 | NAME: - MINNEAPOLIS-HONEYWELL<br>SYSTEM:- PNEUMATIC<br>- $ 720.00 |
| GLANTZ PLB. & HTG.<br>2732 HOYT<br>EVERETT, WASH.<br>AL 2-2442 | $ 114,386.00 | +$ 6,526.00 | +$ 17,250.00 | NO BID | NO CHANGE |
| METCALF-GRIMM<br>5000 ARSENAL WAY<br>BREMERTON, WASH. | $ 111,790.00 | +$ 7,000.00 | +$ 16,000.00 | NO BID | 1. MINNEAPOLIS-HONEYWELL- PNEUM.-$721.<br>2. JOHNSON SERV. - ELECTRONIC +$1743.<br>3. ROBT. SHAW-PNEUM. + $ 225.00 |
| STOLL-FREESE PLBG.<br>24 WINESAP RD. S.W.<br>BOTHELL, WASH.<br>PR 8-6576 | $ 117,990.00 | +$ 6,333.00 | +$ 16,400.00 | NO BID | NAME: MINNEAPOLIS-HONEYWELL - $721.0<br>SYSTEM: PNEUMATIC |
| WESTERN HTG. & PLG.<br>4721-37TH S.W.<br>SEATTLE, WASH.<br>WE-2-3678 | CONTRACTOR DID NOT BID<br>NO BID | NO BID | NO BID | NO BID | NO BID |
| HASKELL CORP.<br>3014 WETMORE<br>EVERETT, WASH.<br>AL 9-2108 | $ 117,470.00 | +$ 5,575.00 | +$ 17,985.00 | NO BID | NO CHANGE |
| HART, INC.<br>11555-27TH N.E.<br>SEATTLE, WN.<br>EM 2-3700 | $ 120,460.00 | +$ 6,633.00 | +$ 18,014.00 | NO BID | NAME: - MINNEAPOLIS HONEYWELL<br>SYSTEM: PNEUMATIC<br>- $ 721.00 |

D A N  F. M I L L E R,  A.I.A. & A S S O C I A T E S,  A R C H I T E C T S

406 MAIN STREET  EDMONDS, WASHINGTON

C E D A R  V A L L E Y  E L E M E N T A R Y  S C H O O L - - - - - - - -E D M O N D S,  W A S H I N G T O N

E L E C T R I C A L  W O R K

B I D  T A B U L A T I O N

| BIDDER<br>ADDRESS<br>TELEPHONE | EWING ELEC.CO.<br>535 MAIN ST.<br>EDMONDS, WASH.<br>PR 8-3773 | KEYSTONE ELEC.<br>180-75 DEMOINE<br>WAY SOUTH, SEAT.<br>CH 3-6683 | PORTER ELEC.<br>1911 MAIN ST.<br>VANCOVER, WASH.<br>OX 3-4371 | SERVICE ELECT. CO.<br>12304-32nd N.E.<br>SEATTLE 55, WASH.<br>EM 3-0260 | STAR LIGHTING & ELEC.<br>111 UNION<br>SNOHOMISH, WASHINGTON<br>LO 8-2161 |
|---|---|---|---|---|---|
| BASIC BID | | 49,700 | | 50,987 | 44,895 |
| ALTERNATE NO. 1<br>MULTI-PURPOSE ROOM<br>ELEC. SOUND SYSTEM | | 660 | | 800 | 895 — |
| ALTERNATE NO. 2<br>SIGNAL DIST. SYSTEM<br>AUGMENTED FOR PROGRAM | | 950 | | 1,215 | 872 — |
| ALTERNATE NO. 3<br>SIGNAL DIST. SYSTEM<br>AUGMENTED FOR INTERCOM | | 575 | | 410 | 388 + |
| ALTERNATE NO. 4<br>T.V. CONDUIT SYSTEM | | 885 | | 1,230 | 725 + |
| ALTERNATE NO. 5<br>REDUCE QUANTITY OF<br>CLASSROOM FLOURESCENT<br>LIGHTING FIXTURES | | — 2,800 | | — 3,000 | — 3,085 |

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DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DIST. #15
PROJECT #345-25-6195

ELECTRICAL

| BIDDER | EWING ELEC. CO. | RAINIER ELEC. | LANGLAND ELEC. COMPANY | RODGERS ELEC. COMPANY | L. LARSON ELECTRIC |
|---|---|---|---|---|---|
| ADDRESS | 535 MAIN EDMONDS, WASH. | 425-2RD AVE. W. SEATTLE, WASH. | P.O. BOX 247 LYNNWOOD, WASH. | 2806 HOYT EVERETT, WASH. | 1812 FAIRVIEW SEATTLE, WASH. |
| TELEPHONE | PR 8-3773 | AT 4-5090 | PR 6-2106 | AL 2-2107 | EA 2-5262 |
| BASIC BID | $44,788.00 | $48,144.00 | $50,022.00 | $55,146.00 | $56,830.00 |
| ALTERNATE E-1: MULTI-PURPOSE ROOM ELECTRONIC SOUND SYSTEM | + 377.60 | + 367.00 | + 436.00 | + 824.00 | + 470.00 |
| ALTERNATE E-2: SIGNAL DISTRIBUTION SYSTEM AUGMENTED FOR PROGRAM | + 999.00 | + 998.00 | +1,078.00 | +1,088.00 | + 1,088.00 |
| ALTERNATE E-3: SIGNAL DISTRIBUTION SYSTEM AUGMENTED FOR INTERCOM | + 510.00 | + 497.00 | + 543.00 | + 730.00 | + 586.00 |
| ALTERNATE E-4: ADD TV CONDUIT & OUTLETS | + 750.00 | + 838.00 | +1,207.00 | +1,030.00 | + 1,050.00 |
| ALTERNATE E-5: SUBSTITUTE ELECTRONIC CLOCK SYSTEM FOR WIRED CLOCK SYS. | + 88.00 | - 84.00 | + 400.00 | + 402.00 | + 800.00 |

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
CHASE LAKE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

## ELECTRICAL

| BIDDER | BASIC BID | ALTERNATE E-1: MULTI-PURPOSE RM. ELECTRONIC SOUND SYSTEM | ALTERNATE E-2: SIGNAL DIST. SYSTEM AUGMENTED FOR INTER-COM | ALTERNATE E-3: ADD TV CONDUIT & OUTLETS | ALTERNATE E-4: SUBSTITUTE ELECTRONIC CLOC SYSTEM FOR WIRED CLOCK SYSTEM |
|---|---|---|---|---|---|
| BECKSTROM'S ELEC. CO.<br>14056 BOTHELL WAY<br>SEATTLE 55, WASH.<br>EM 2-0100 | $ 49,955.00 | + $ 387.00 | + $ 395.00 | + $ 773.00 | - $ 150.00 |
| COCHRAN ELECTRIC<br>21.. N. 35TH<br>SEATTLE, WASH. | NO BID<br>CONTRACTOR | NO BID<br>DID NOT BID | NO BID | NO BID | NO BID |
| EWING ELECTRIC<br>535 MAIN<br>EDMONDS, WASH.<br>ER 8-3773 | $ 48,990.00 | + $ 377.00 | + $ 410.00 | + $ 700.00 | - $ 44.00 |
| FROST ELECTRIC<br>EAST 21 ERMINA<br>SPOKANE 21, WASH.<br>FA 8-3750 | $ 49,974.00 | + 424.00 | + 479.00 | + $ 708.00 | + $ 39.00 |
| INDUSTRIAL ELECTRIC<br>1938 FAIRVIEW E.<br>SEATTLE, WASH.<br>EA 4-3260 | $ 47,975.00 | + 396.00 | + 432.00 | + 757.00 | + 583.00 |
| NORTHWEST ELECTRIC<br>420 YALE NORTH<br>SEATTLE, WASH.<br>MA 3-2131 | $ 50,300.00 | + 370.00 | + 409.00 | + 649.00 | + 160.00 |
| LOYD LARSEN ELEC. CO.<br>312 FAIRVIEW AVENUE E.<br>SEATTLE, WASHINGTON | $ 51,333.00 | + 395.00 | + 438.00 | + 890.00 | + 754.00 |

BID TABULATION SHEET
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

SANITARY SEWERAGE FACILITIES

PROJECT # 345-25-6195

| ITEM NO. | APPROX. QUANTITY | DESCRIPTION OF ITEM | NAME OF CONTRACTOR AND AMOUNT BID: MANOR CONSTRUCTION, INC. UNIT PRICE | MANOR CONSTRUCTION, INC. TOTAL PRICE | STOLL & FREESE PLBG. & HTG., INC. UNIT PRICE | STOLL & FREESE PLBG. & HTG., INC. TOTAL PRICE | HASKELL CORPORATION UNIT PRICE | HASKELL CORPORATION TOTAL PRICE |
|---|---|---|---|---|---|---|---|---|
| 1 | 887 L.F. | 6" CONC. SEWER PIPE | $ 3.30 | $ 2,927.10 | $ 3.52 | $ 3,122.24 | $ 4.20 | $ 3,725.40 |
| 2 | 407 L.F. | 8" CONC. SEWER PIPE | 4.00 | 1,628.00 | 3.95 | 1,607.65 | $ 4.40 | 1,790.80 |
| 3 | 2 EACH | 6" ON 8" TEE | 2.50 | 5.00 | 7.00 | 14.00 | 2.15 | 4.30 |
| 4 | 5 EACH | STANDARD DEPTH MANHOLE | 240.00 | 1,200.00 | 290.00 | 1,450.00 | 259.00 | 1,295.00 |
| 5 | 4 L.F. | EXTRA DEPTH FOR MANHOLES OVER 7' DEEP | 20.00 | 80.00 | 15.00 | 60.00 | 21.50 | 86.00 |
| 6 | 1 EACH | DROP INLETS, COMPLETE | 70.00 | 70.00 | 22.00 | 22.00 | 54.00 | 54.00 |
| 7 | 30 C.Y. | WASHED GRAVEL BEDDING | 4.50 | 135.00 | 5.75 | 172.50 | 5.40 | 162.00 |
| 8 | 30 C.Y. | PIT RUN GRAVEL RESTORATION | 2.50 | 75.00 | 4.00 | 120.00 | 3.20 | 96.00 |
| 9 | 20 C.Y. | CRUSHED GRAVEL RESTORATION | 5.00 | 100.00 | 4.90 | 98.00 | 7.55 | 151.00 |
| 10 | 120 S.Y. | ASPHALTIC CONCRETE RESTORATION | 5.00 | 600.00 | 3.30 | 396.00 | 3.20 | 384.00 |
| | | | | $ 6,820.10 | | $ 7,062.39 | | $ 7,748.50 |
| | | | | 30 DAYS | | 30 DAYS | | 30 DAYS |

CERTIFIED TRUE COPY

DAN F. MILLER A.I.A. & ASSOCIATES, ARCHITECTS
EDMONDS, WASHINGTON

BID TABULATION SHEET
MEADOWDALE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

PAGE
SANITARY SEWERAGE FACILITIES

PROJECT #345-25-6195

| ITEM NO. | APPROX. QUANTITY | DESCRIPTION OF ITEM | NAME OF CONTRACTOR AND AMOUNT OF BID | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | DEENY CONSTRUCTION COMPANY | | P.F. STEVENS CONSTRUCTION | | CLEO MANNING | | J. PATRICELLI | |
| | | | UNIT PRICE | TOTAL PRICE | UNIT PRICE | TOTAL PRICE | UNIT PRICE | TOTAL PRICE | UNIT PRICE | TOTAL PRICE |
| 1 | 887 L.F. | 6" CONC. SEWER PIPE | $ 4.74 | $ 4,203.38 | $ 4.66 | $ 4,300.00 | $ 7.30 | $ 6,436.00 | $ 7.50 | $ 6,652.50 |
| 2 | 407 L.F. | 8" CONC. SEWER PIPE | 5.75 | 2,340.25 | 5.00 | 2,319.00 | 7.50 | 3,052.50 | 9.50 | 3,868.50 |
| 3 | 2 EACH | 8" ON 8" TEE | 5.00 | 10.00 | 20.00 | 40.00 | 24.00 | 48.00 | 10.00 | 20.00 |
| 4 | 5 EACH | STANDARD DEPTH MANHOLE | 200.00 | 1,000.00 | 320.00 | 1,600.00 | 250.00 | 1,250.00 | 400.00 | 2,000.00 |
| 5 | 4 L.F. | EXTRA DEPTH FOR MANHOLES OVER 7' DEEP | 20.00 | 80.00 | 30.00 | 120.00 | 35.00 | 105.00 | 35.00 | 140.00 |
| 6 | 1 EACH | DROP INLETS, COMPLETE | 400.00 | 400.00 | 50.00 | 50.00 | 110.00 | 110.00 | 150.00 | 150.00 |
| 7 | 30 C.Y. | WASHED GRAVEL BEDDING | 4.50 | 135.00 | 6.00 | 180.00 | 5.20 | 156.00 | 6.00 | 180.00 |
| 8 | 30 C.Y. | PIT RUN GRAVEL RESTORATION | 3.20 | 96.00 | 3.50 | 105.00 | 4.50 | 135.00 | 4.00 | 120.00 |
| 9 | 20 C.Y. | CRUSHED GRAVEL RESTORATION | 8.80 | 176.00 | 6.00 | 120.00 | 6.50 | 124.00 | 6.00 | 120.00 |
| 10 | 120 S.Y. | ASPHALTIC CONCRETE RESTORATION | 3.85 | 462.00 | 3.50 | 420.00 | 4.65 | 558.00 | 3.00 | 360.00 |
| * FIELD STAKING & INSPECTION. | | | | | | | | | | * 525.00 |
| | | | | $ 8,902.63 | | $9,254.00 | | $ 11,975.50 | | $ 14,134.00 |
| | | | | 35 DAYS | | 30 DAYS | | 30 DAYS | | 45 DAYS |

ROBERT A. BEZZO & ASSOCIATES, ARCHITECTS
SUITE E, 115-4TH AVENUE SOUTH
EDMONDS, WASHINGTON

BID TABULATION
CHASE LAKE ELEMENTARY SCHOOL
EDMONDS SCHOOL DISTRICT #15

## SANITARY SEWERAGE FACILITIES

| BIDDER | BASIC BID | |
|---|---|---|
| ALMER CONST. CO.<br>910-8TH AVE. SO.<br>EDMONDS, WASH.<br>PR 8-1275 | $ 2,944.00 | |
| D & D CONST.<br>P.O. BOX 1055<br>LYNNWOOD, WASH.<br>PR 6-7102 | CONTRACTOR DID NOT BID<br>NO BID | |
| LENTS INC.<br>279 FOURTH STREET<br>BREMERTON, WASH.<br>ES 3-2544 | CONTRACTOR DID NOT BID<br>NO BID | |
| METCALF-GRIMM MECH.<br>5000 ARSENAL WAY<br>BREMERTON, WASH. | $ 3,997.00 | |
| JOHN PATRICELLI<br>5316 RANIER AVE. SO.<br>SEATTLE, WASH. | $ 6,987.00 | |

February 19, 1963

Mr. Jack Riggin
Assistant Disbursing Officer
Division of School Plant Facilities
State Board of Education
Olympia, Washington

Dear Jack:

This is to certify that the Board of Directors of Edmonds School District 15, at its meeting on February 18, 1963, accepted as complete the work of the following contractor on our Cedar Valley Elementary School, Project No. 345-25-6034:

Edmonds Construction Co.
106 Main St.
Edmonds, Washington

Sincerely,

EMA:ft

E. M. Allen
Asst. Supt. - Business
District Secretary

February 19, 1963

Mr. Jack Riggin
Assistant Disbursing Officer
Division of School Plant Facilities
State Board of Education
Olympia, Washington

Dear Jack:

This is to certify that the Board of Directors of Edmonds School District 15, at its meeting on February 18, 1963, accepted as complete the work of the following contractor on our Cedar Valley Elementary School, Project No. 345-25-6034:

Stoll & Froese
24 Winesap Road
Bothell, Washington

Sincerely,

EMA:ft

E. M. Allen
Asst. Supt. - Business
District Secretary

February 19, 1963

Mr. Jack Riggin
Ass stant Disbursing Officer
Division of School Plant Facilities
State Board of Education
Olympia, Washington

Dear Jack:

This is to certify that the Board of Directors of Edmonds School District 15, at its meeting on February 18, 1963, accepted as complete the work of the following contractor on our Cedar Valley Elementary School, Project No. 345-25-6034:

Star Lighting & Elec.
111 Union
Snohomish, Washington

Sincerely,

EMA:ft

E. M. Allen
Asst. Supt. - Business
District Secretary

July 15, 1964

Superintendent of Public Instruction
Old Capitol Building
Olympia, Washington

Attention: Mr. George Howe, Fiscal Officer

Re: Project No. 345-25-6195
Meadowdale Elementary School

Gentlemen:

The Board accepted the work of Manor Construction Company on our Project No. 345-25-6195, the Meadowdale Elementary School, on June 15, 1964. The thirty-day lien period has now expired.

This is to certify there are no liens on file with the Edmonds School District No. 15 against this company.

Sincerely,

EMA:ft

E. M. Allen
Asst. Supt. - Business
District Secretary

May 4, 1964

## RECOMMENDATIONS FOR AWARD OF CONTRACTS
## CHASE LAKE ELEMENTARY SCHOOL

The following recommendations for award of contracts on Chase Lake Elementary School were approved:

### General Contract

The Board approved the low bid of Edmonds Construction Company and recommended its acceptance by the State Board of Education by motion of Mr. Higgins, seconded by Mr. Rutter. To the basic bid of $364,000 were added the following matchable alternates: Alternate A-8, A-10, A-11, A-12 and A-17, and non-matchable alternates A-1 and A-2. The total amount for the general contract is $379,725.

### Mechanical Contract

The Board approved the low bid of Lent's Inc. and recommended its acceptance by the State Board of Education by motion of Mr. Rutter, seconded by Mr. Higgins. To the basic bid of $106,338 were added the following matchable alternates: M-1, M-2 and M-4. The total amount for the mechanical contract is $ 128,268.

### Electrical Contract

The Board approved the low bid of Industrial Electric, and recommended its acceptance by the State Board of Education by motion of Mr. Rutter, seconded by Mr. Higgins. To the basic bid of $47,975 was added matchable Alternate E-3, and the following non-matchable alternates: E-1 and E-2. The total amount for the electrical contract is $49,560.

### Sanitary Sewer Contract

A motion was made by Mr. Higgins, seconded by Mr. Johnston and carried that the low bid of Almer Construction Company in the amount of $2,944.00 for the sewer construction for the Chase Lake Elementary School be recommended to the State Board of Education for acceptance.

I hereby certify the above to be a true and correct excerpt from the minutes of the School Board meeting of May 4, 1964.

E. M. Allen,
District Secretary

May 5, 1964



Edmonds Construction Company
P. O. Box 524
Lynnwood, Washington

Gentlemen:

Letter of Intent

Please be advised that it is the intent of Edmonds School District 15 to instruct the general contractor, Edmonds Construction Company, to proceed with the preliminary work for the Chase Lake Elementary School pending receipt of the B-8 Forms from the State Board of Education. This action is taken to save time and to make it possible for the completion of this unit in time for the second semester of school in January 1965.

EMA:ft

E. M. Allen
District Secretary

May 5, 1964

Lent's Inc.
279 Fourth Street
Bremerton, Wash.

Gentlemen:

Letter of Intent

Please be advised that it is the intent of Edmonds School District 15 to instruct the mechanical contractor, Lent's Inc., to proceed with the preliminary work for the Chase Lake Elementary School pending receipt of the B-8 Forms from the State Board of Education. This action is taken to save time and to make it possible for the completion of this unit in time for the second semester of school in January 1965.

EMA:ft

E. M. Allen
District Secretary

May 5, 1964

Industrial Electric
420 Yale North
Seattle, Wash.

Gentlemen:

Letter of Intent

Please be advised that it is the intent of Edmonds School District 15 to instruct the electrical contractor, Industrial Electric, to proceed with the preliminary work for the Chase Lake Elementary School pending receipt of the B-8 Forms from the State Board of Education. This action is taken to save time and to make it possible for the completion of this unit in time for the second semester of school in January 1965.

EMA:ft

E. M. Allen
District Secretary

May 5, 1964



Almer Construction Co.
910 8th Ave. So.
Edmonds, Washington

Gentlemen:

Letter of Intent

Please be advised that it is the intent of Edmonds School District 15 to instruct the sanitary sewer contractor, Almer Construction Co., to proceed with the preliminary work for the Chase Lake Elementary School pending receipt of the B-8 Forms from the State Board of Education. This action is taken to save time and to make it possible for the completion of this unit in time for the second semester of school in January 1965.

EMA:ft

E. M. Allen
District Secretary

# APPENDIX C

## QUESTIONNAIRE

### RESEARCH PROJECT

"A STUDY OF THREE ELEMENTARY SCHOOLS CONSTRUCTED FROM A SINGLE MODIFIABLE PLAN IN THE EDMONDS SCHOOL DISTRICT"

1. Does the above title adequately describe the project?
   Do you have any suggestions as to how the title might be improved?

2. What purposes and needs could be served by this project?

   a. Local

   b. State

3. What are some limitations to be encountered in this study?

(2)

4. What means might be used to gather data concerning the three schools involved?

5. What are some architectural terms pertinent to stock plans and school building construction that might b_ used in this type of study?

# SURVEY AFTER OCCUPANCY OF BUILDING CONSTRUCTED FROM MODIFIABLE PLAN

Please comment upon the adequacies and inadequacies of Cedar Valley, Meadowdale and Chase Lake Elementary schools in terms of:

1. General Classrooms
   a. Size

   b. Arrangement

   c. Cabinet work, chalk boards, etc.

   d. Other

2. Multi-Purpose Room
   a. Size

   b. Utility

3. Office
   a. Size

   b. Cabinet work

   c. Arrangement

   d. Storage

   e. Other

4. Library
   a. Size

   b. Conference rooms

c. Audio-visual storage

d. Testing facilities

e. Textbook storage

f. Cabinet work and storage

g. Other

5. Health Center
   a. Size

6. General
   a. Access to the site & building

   b. Placement of units

   c. Ramps and walkways

   d. Parking

7. Other