PROGRAM EVALUATION
OF THE
CITY OF VIRGINIA BEACH
EROSION AND SEDIMENT CONTROL PROGRAM

Water Resources Division

SDN

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1989

PROGRAM EVALUATION
OF THE
CITY OF VIRGINIA BEACH
E&S CONTROL PROGRAM

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I. EXECUTIVE SUMMARY

This report contains the results of an evaluation of the City of Virginia Beach Erosion and Sediment (E&S) Control Program. The evaluation determines the effectiveness of the current program and recommends specific improvements.

Chapter II is an introductory chapter which provides an overview of the objective and purpose of the evaluation.

Chapter III provides the evaluation methodology and determines whether the current administration and organizational structure is adequate to meet the City's objectives of controlling erosion and sedimentation. It evaluates the plan review process, inspection, and enforcement procedures. It also determines the current and future staffing needs.

Chapter IV contains a discussion of the City's interagency coordination.

Chapter V highlights the need for staff training.

Chapter VI provides conclusions on the evaluation of the City's E&S Control program.

Chapter VII recommends changes in the City's E&S Control Program.

The salient recommendations are listed below:

- **Establish an office to coordinate the activities of the E&S Control Program,**
- **Establish clear cut review, inspection, and enforcement responsibilities,**
- **Establish a certification program for the plan reviewers and the inspectors,**
- **Increase the surety bond and the penalty amount, and**
- **Conduct awareness programs for the general public and the building community.**
- **Include E&S Control information in the City geographic information system (G.I.S.).**

II OBJECTIVE

A. Current Legislation

The City of Virginia Beach has been in the forefront of erosion and sediment control legislation. In 1965, the City first approved an E&S Control and Tree Protection Ordinance. At that time, the awareness for such programs was lacking and the knowledge of erosion and sediment control measures was inadequate. The City of Virginia Beach exhibited a leadership role among local jurisdictions in passing the Ordinance. The Ordinance mandated the implementation of a city-wide E&S Control program. The enactment of the City of Virginia Beach Ordinance, in 1965, preceded the Commonwealth of Virginia's law by eight (8) years. The Commonwealth of Virginia erosion and sediment control legislation was promulgated in 1973. The general provisions of the 1973 act require that state-wide E&S Control standards, criteria, and procedures be established and followed by local jurisdictions in developing and implementing local E&S Control programs.

The Commonwealth of Virginia administers the E&S Control law through an E&S Control program. The State program is administered by the Virginia Soil and Water Conservation Board under Title 10, Chapter 5, Article 4 (Chapters 10.1 -560 -10.1 - 571) of the State Code.

Pursuant to the State Code, the City of Virginia Beach has been regulating land disturbing activities through a local E&S Control program. In compliance with the State Code, the Virginia Beach City Council, on August 21, 1989, adopted an Ordinance to amend and re-ordain Article III of Chapter 30 of the Code of the City of Virginia Beach pertaining to E&S Control and Tree Protection. This adopted ordinance outlines the various methods to be employed by the City of Virginia Beach to minimize erosion and sedimentation and includes the policies and guidelines, and inspection and enforcement procedures.

B. Purpose of Evaluation

The Office of Environmental Management initiated and procured a Coastal Management Grant (# NA88AA-D-CZ091) for $13,000 to have the evaluation performed. Though the City has the staff and expertise, it was decided to hire an outside consultant to perform the evaluation for objectivity.

It should be noted that this evaluation was initiated by the City and has not been prompted by any State Law.

On July 3, 1989, Smith Demer Normann, Ltd. was retained to perform the evaluation of the City's E&S Control Program. The purpose of the evaluation is to:

1. determine whether the current administration and organization structure is adequate to meet the City's objectives of controlling erosion and sedimentation,
2. evaluate the plan review processes, inspection and enforcement procedures and coordination with different agencies of the City of Virginia Beach,
3. determine the adequacy of staff training,
4. highlight the strengths and deficiencies of the program, and
5. provide recommendations for improving and enhancing the efficiency and effectiveness of the current E&S Control Program.

III EVALUATION METHODOLOGY

A. General

The City requested and obtained a grant. A committee of persons representing various departments in the City of Virginia Beach, was formed to develop the content of the scope of work and a contract. The Office of Environmental Management assumed the responsibility for coordinating these tasks.

The first step, after the selection of the Consultant, was to collect background material on the City E&S Control Ordinance and the State of Virginia E&S Control Law. These were furnished to the Consultant by the Office of Environmental Management. A group meeting was held between the Consultant and the members of the working committee to start the project. The purposes of this meeting were to gather the pertinent information regarding the functions and responsibilities of each department associated with E&S Control in the City of Virginia Beach, and to discuss the operation of the program in a group setting.

The next step was to conduct individual interviews with the members of the staff of each department associated with E&S Control in the City. These interviews were coordinated by the Project Manager, Mary Morris of the Office of Environmental Management. The following departments and the members of the staff were interviewed:

Department of Public Works

Engineering Division

- Plan Review Section	Mr. Richard Elliot
- Waterfront Operations Bureau	Mr. Thomas W. Couch
	Mr. Gary Price
- Highway Construction	Mr. Don Perry
	Mr. Chris DeFord

Highway Inspections Division	Mr. Joe Russell
	Mr. Al Henley
	Mr. Robert Bidlack
Department of Planning	
Comprehensive Planning Division	Mr. Clay Bernick
	Mr. Collin Powers
Operations Division	Mr. Rick Scarper
Department of General Services	
Landscape Division	Mr. Roger Huff
Department of Agriculture	
Environmental Services Division	Mr. Bartley E. Tuthill
Department of Permits & Inspections	Mr. Robert R. Loher
Office of the City Attorney	Mr. David S. Hay
	Mr. Nianza E. Wallace, II

At these individual interviews, the specific responsibilities of each department associated with E&S Control was ascertained. The description and implementation of the City's E&S Control Program from the perspective of each department was obtained and verbal comments were solicited. The individual interviews were helpful in obtaining a good understanding of the differing opinions of the program. The personal experiences with, and attitudes toward, the program and its effectiveness and weaknesses were determined during the interview process.

The next step was to visit various on-going construction projects in the City to observe E&S Control practices. Another purpose of the field trip was to observe compliance with technical standards contained in the State of Virginia's E&S Control Handbook, and with the State Law and the City Ordinance. The following sites in the City were selected by the Highway Inspections Division for observation during the field trip:

- Redmill
- Buyrn Farm North
- Whitehurst Grove
- Lago Mar
- Glenwood
- Church Point

During the field trip, members of the staffs of various City departments accompanied the Consultant.

The final step in the evaluation of the City E&S Control Program was to distribute survey forms to staffs of the appropriate departments. The survey forms were developed by the Consultant to evaluate the State of Virginia E&S Control Program. The survey forms covered the following elements of the program:

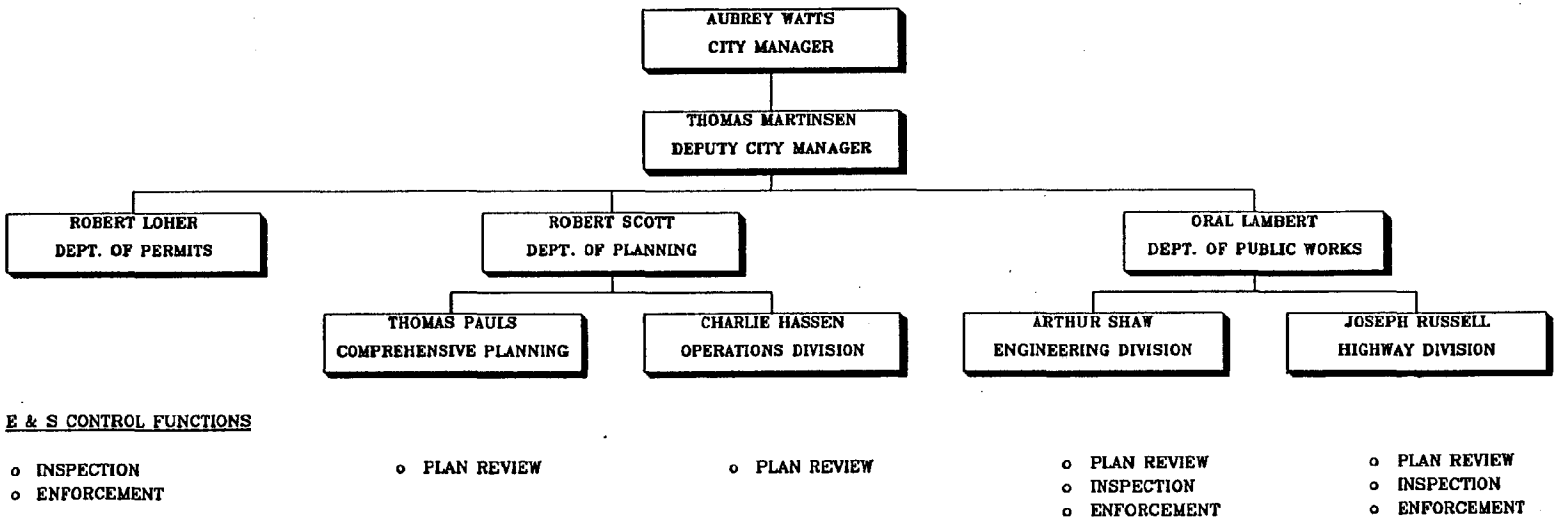
- Administration
- Technical
- Enforcement
- Plan Review
- Site Inspections
- Legal

B. Current Administration & Organization Structure

1. Review

Under the adopted City of Virginia Beach Ordinance, the plan approving authority responsible for determining the adequacy of an E&S Control Plan submitted for land disturbing activities is the Department of Public Works, Engineering Division or the City Engineer. For reviewing the E&S Control Plans, other departments of the City are also involved. An organizational chart depicting the various departments and divisions currently involved in the City E&S Control Program and the functions performed by each of them are shown on Figure 1.

CITY OF VIRGINIA BEACH
EROSION & SEDIMENT CONTROL PROGRAM



ORGANIZATION CHART

FIGURE 1

2. Evaluation

The organization chart shows that there are several departments involved in the City of Virginia Beach E&S Control Program. These departments have responsibilities in reviewing, inspecting, and enforcing E&S Control in the City. There is no one department identified and associated with E&S Control. This organizational structure, at best, requires extensive coordination between the various offices responsible for E&S Control. At times, confusion may occur, leading to duplication of effort, delays, uneven application of the ordinance, etc. This comment is made based on the experience of the Consultant. Whenever extensive coordination is required, duplication of effort and delays do occur. Several members of the staff also mentioned this during the interview process.

In order to focus attention on E&S Control, a single office should be assigned the responsibility for overall coordination of all aspects of E&S Control and should have the E&S Control designation in its title. This office could be under an existing department of the City. The office phone number and name of the person to contact on E&S Control questions should be on all the City's brochures and on all approved plans.

C. Current Plan Review Process

1. Review

Under the adopted City of Virginia Beach Ordinance, a Conservation Plan or E&S Control Plan is prepared. The plan reflects the measures to be utilized to contain sediment on-site during the different stages of development of the site.

The E&S Control Plans are prepared by the Consulting Engineer, Surveyor, Architect, or other representative for the developer or the builder. The Consulting Engineer, Surveyor, Architect or person submits the plan to the Development Review Office in the Department of Planning. After the plans are logged-in, they are forwarded to the Department of Public Works, Engineering Division, Plan Review Section. After receipt and a second log-in of the plans by the Department of Public Works, they are forwarded to various City agencies for

review and comment. The Plan Review Section gathers all comments from different review agencies. The comments are synthesized into one letter, a copy of which is sent to the Consulting Engineer, Surveyor, Architect, or representative who submitted the plans.

The type of plans which require that E&S Control measures be submitted to the Plan Review Section are as follows:

- Site plans for commercial activities
- Construction plans for residential subdivisions
- Drainage plans
- Preliminary plans
- Duplex plans
- Combination plans
- Grading and/or filling plans

The following agencies in the City of Virginia Beach review the E&S Control Plans:

Department of Public Works

Engineering Division - Plan Review Section

- Reviews the appropriateness of the E&S Control measures utilized for controlling sediment.
- Reviews the design and supporting computations.
- Reviews the drainage design.
- Reviews the appropriateness of the design and supporting computations of the stormwater management measures (Best Management Practices - BMPs).
- Reviews the plan for compliance with the State of Virginia E&S Control Handbook.

Engineering Division -- Waterfront Operations Bureau

- Reviews appropriateness of E&S Control measures in environmentally sensitive wetland areas.
- Reviews and approves all Site Plans and Construction Plans with respect to wetlands.
- Reviews and approves the plans connected with lowlands, and borrow pits.
- Inspects and monitors the project.

Highway Inspections Division

- Reviews and comments on all Construction Plans for residential sub-divisions.
- Reviews and comments on all Site Plans in the City of Virginia Beach rights-of-way.
- Reviews and comments on the appropriateness of the E&S Control measures with respect to quality control during the land disturbing activity.
- Reviews and comments on the appropriateness of the E&S Control measures with respect to maintenance.
- Reviews and recommends on-site E&S Control measures to be incorporated in the design to enhance specific site conditions.
- Reviews the plan for compliance with the State of Virginia E&S Control Handbook.

Department of Planning

Comprehensive Planning Division

- Reviews and comments on all Site Plans and Construction Plans.

- Reviews and coordinates the development activity with the overall planning of the area.
- Reviews and amalgamates the environmental effects of the development activity with respect to water quality of the receiving waters.
- Reviews and approves the stormwater management measures (BMPs).
- Reviews the compliance with the State of Virginia E&S Control Handbook.

Department of General Services

Landscape Division

- Reviews and comments on the appropriateness of the E&S Control measures with respect to vegetative requirements and soil erosion.
- Reviews and comments on parking lot landscaping.
- Reviews the plan for compliance with the landscape ordinance requirements.
- Reviews and approves the tree protection requirements.
- Reviews and comments on screening and buffering requirements.

Department of Agriculture

Environmental Services Division

- Reviews all Site Plans and Construction Plans for the appropriateness of the E&S Control measures.
- Reviews the E&S Control Plans and comments on the erodibility of soils.
- Reviews the plans for compliance with Floodplain Ordinance Regulations and bank stability adjacent to floodplains.

2. Evaluation

After the E&S Control Plans are received and logged-in by the Department of Public Works, Engineering Division, Plan Review Section, an individual staff engineer is assigned to the project . The Plan Review Section determines to which agency the E&S Control Plans should be forwarded for review and comment. These agencies review the E&S Control Plans for compliance based on their specific expertise and assigned responsibilities. The individual review agencies make their comments and forward them back to the assigned staff engineer. The assigned staff engineer incorporates all comments in a letter and forwards a copy to the applicant. The applicant incorporates the comments in the revised E&S Control Plans and resubmits to the Plan Review Section for approval. If the assigned staff engineer approves the revised E&S Control Plans, the approval process is completed.

Figure 2 reflects the Plan Review Process and the various City agencies involved in the approval of E&S Control Plans.

Thirteen (13) copies of the E&S Control Plans are submitted by the applicant. A full-time staff member in the Plan Review Section is assigned to track the progress of the review of the plans with various City agencies. The Plan Review Section keeps this information on a well-structured Lotus spreadsheet. The Section is in the process of getting this information transferred to an Rbase format.

With the forwarding of E&S Control Plans to various review agencies, there is a possibility of the plans being misplaced or not being forwarded to a particular review agency. In cases where all the comments have not been incorporated in the resubmitted plans, the engineer sends the plans back to the applicant. Generally, all comments are incorporated in one resubmission. This assertion is based on the comments made by the members of the staffs of different departments during the individual interviews. The reviewing of E&S Control Plans by various agencies provides a distinct possibility for duplication of effort, excessive review and conflicting comments. This finding is based on the comments made by members of the

staff during the interviews. Presently, the resolution of any conflict on comments made by various agencies on the E&S Control Plans is deliberated and coordinated by the assigned staff engineer.

The process of resolution of any conflicts on comments can be improved by instituting an additional step. Before the synthesized letter is mailed to the applicant, the commenting agencies may review the draft of the letter. By instituting this step, the individual reviewer

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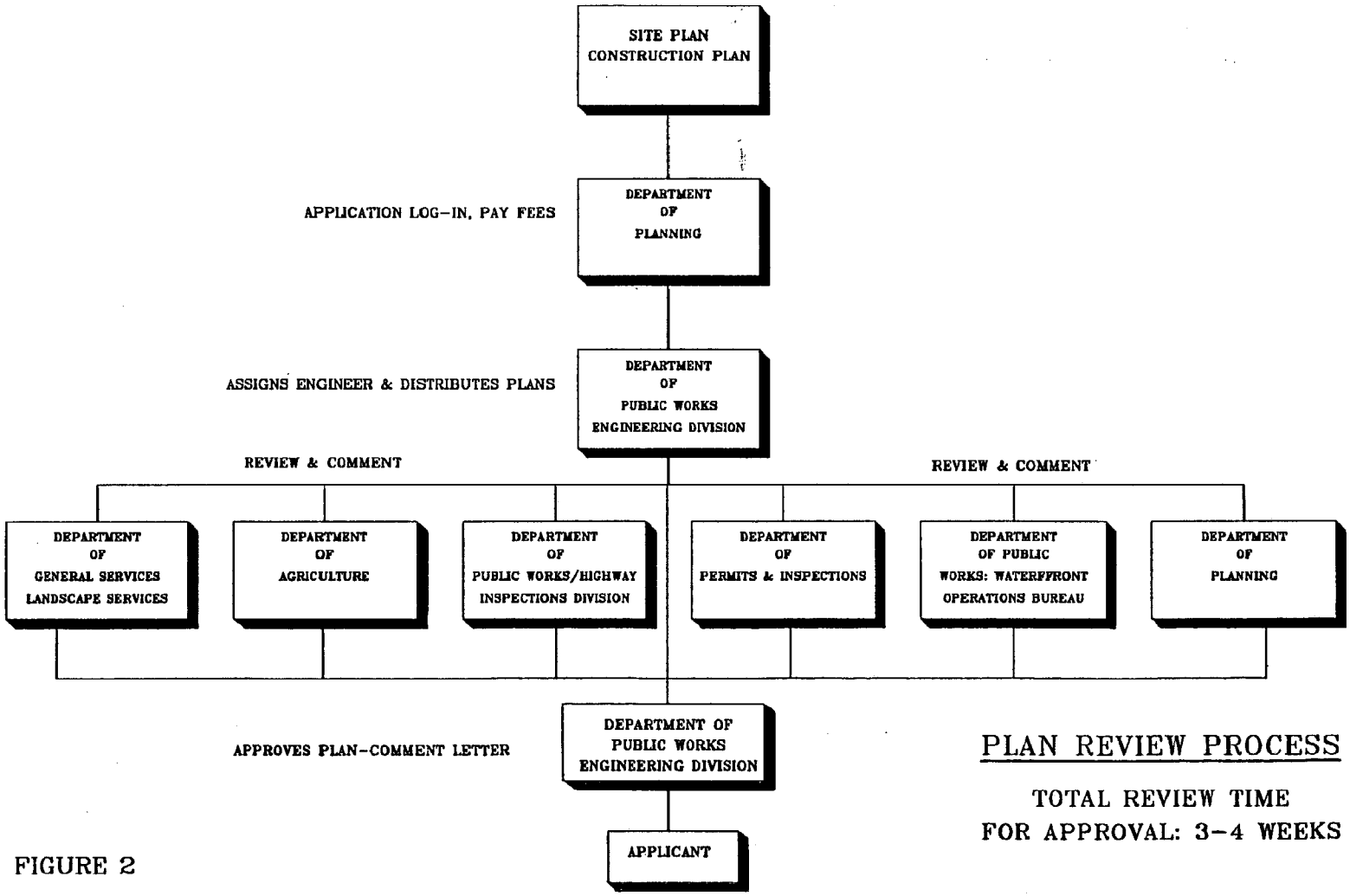

PLAN REVIEW PROCESS

TOTAL REVIEW TIME
FOR APPROVAL: 3-4 WEEKS

FIGURE 2

of a particular agency can be sure that his concerns are being conveyed to the applicant and the appropriate measures will be shown on the approved E&S Control Plans. The time and effort involved to review the draft letter should be minimal.

As is evident from Figure 2, there are several agencies involved in reviewing the E&S Control Plans. Each agency reviews these plans from its own perspective and that is the inherent strength of the current review process. At the same time, the process has certain deficiencies for the reasons mentioned above. These deficiencies are the result of several members of different agencies reviewing the same E&S Control Plans. As discussed before, this can lead to duplication of effort and excessive review. This can be alleviated by reducing the number of agencies involved in reviewing the plans. The particular agencies to be relieved of reviewing the E&S Control Plans should be at the discretion of the City Manager's Office.

D. Current Inspection Process

1. Review

After the E&S Control Plans have been approved by the Department of Public Works, Engineering Division, Plan Review Section, an approval stamp is affixed on the plans. A facsimile of the approval stamps for E&S Control is shown on Figure 3. Recently, the Plan Review Section has initiated a pre-construction meeting note to be added on the E&S Control Plans. This note is in addition to the regular E&S Control notes to be shown on all E&S Control Plans. The pre-construction meeting note directs the applicant's contractor to contact the Department of Public Works, Highway Inspections Division before any land disturbing activity commences on the particular site. The purpose of this meeting is to discuss the E&S Control measures shown on the approved plan and to discuss construction scheduling and time frames associated with the land disturbing activity on the site.

FIGURE 3

APPROVAL FOR OPERATION OF A
"LAND DISTURBING ACTIVITY"

APPROVAL is hereby given, in accordance with Article II, Chapter 31, Code of the City of Virginia Beach (Ordinance 485) entitled EROSION AND SEDIMENT CONTROL, and subject to all conditions outlined in said ordinance.

APPROVED

DATE _____

BY _____

APPROVED FOR EROSION AND
SEDIMENTATION CONTROL
ONLY

The following agencies of the City of Virginia Beach are associated with E&S Control during construction:

Department of Public Works

Highway Inspections

- Inspects all Site Plan activities in the City of Virginia Beach rights-of-way.
- Inspects all Construction Plans activities in residential subdivisions.

Waterfront Operations Bureau

- Reviews the plans adjacent to water (lakes, streams, rivers, etc.)
- Reviews the plans associated with waterfront projects.
- Inspects all construction activities associated with waterfront projects.
- Investigates all unauthorized land disturbing activities.
- Prosecutes all unauthorized land disturbing activities.

Highway Construction

- Inspects all construction activity for C.I.P. projects.

Department of Permits and Inspections

- Inspects all Site Plans activities which are not in the City of Virginia Beach rights-of-way.
- Provides assistance to the Highway Inspection inspectors on an as needed basis.

Department of Utilities

- Inspects all utility projects.

2. Evaluation

As in the plan review process, there are several agencies involved in performing the identical function of inspecting the E&S Control measures to be installed during the land disturbing activity. There is no clearly identified direction for the applicant's contractor with regard to which agency to contact in order to have an inspection performed. During the interview process, this confusion in the building community was verbally asserted by all members of the staff. The confusion can be corrected by modifying the pre-construction meeting note. The pre-construction meeting note on all E&S Control Plans (Site Plans and Construction Plans) should direct the applicant's contractor to contact the Department of Public Works, Highway Inspections Division, for getting any inspection performed. By instituting this step, there is one central agency which is responsible for performing the inspections related to E&S Control. Any inspection to be performed for E&S Control measures in the City should be the responsibility of this central agency.

It seems pertinent to comment that on certain sites, land disturbing activity commences without knowledge of the inspection staff of any agency of the City of Virginia Beach. Examples are rough grading or filling of sites. In such cases, the inspection staff has to play catch up for getting the already deteriorating erosion and sedimentation problem rectified. Interim measures may have to be installed and the process of ameliorating the situation could be aggravated by inclement weather. This puts onerous responsibility on the inspection staff.

The pre-construction meeting note clearly states that no land disturbing activity can commence before the Highway Inspections Division is contacted. By adding a phone number to this note, it becomes the responsibility of the contractor to take this step. If any land disturbing activity commences before notification is received, enforcement action should be taken by the Highway Inspection Division.

The effective administration of an E&S Control Ordinance is not solely a matter of regulating and enforcing the actions of the private sector contractors. It is important to incorporate E&S Control measures into the City of Virginia Beach's own C.I.P. projects. The

general public, as well as the building community, must perceive that the City will require of itself what it requires of them. Presently, the responsibility of enforcing the E&S Control Ordinance for C.I.P. projects falls under the Department of Public Works, Highway Construction. The decision whether to combine E&S Control function of this agency with the Highway Inspection Division or not involves organizational changes and should be at the discretion of the City Manager's Office.

Likewise, all the E&S Control functions performed by the Waterfront Operations Bureau can be the responsibility of the Highway Inspections Division. Some prudent judgement by the staff will have to be made on case-by-case basis when environmentally sensitive wetlands are involved.

During the interview process, it was mentioned that no E&S Control measures are required for utility projects for water and sewer lines. It is recommended that a policy of incorporating the E&S Control measures for these projects be instituted. The responsibility of enforcing this may be combined with the functions of the Highway Inspections Division.

E. Enforcement Procedures

1. Review

Under Section 30 - 60 (a)(2) of the approved E&S Control and Tree Protection Ordinance, the City Engineer may require monitoring and reports from the applicant to ensure compliance with the approved E&S Control Plans. If the City Engineer determines that there is a failure to comply with the plans, notice will be served upon the applicant by registered or certified mail. The notice will specify the measures needed to comply with the approved plans and shall specify the time within which such measures shall be completed. Upon failure to comply within the time specified, the permit may be revoked and the applicant shall be deemed to be in violation of the E&S Control and Tree Protection Ordinance. Section 30 - 60 (b) provides a vehicle to issue a stop work order on all or part of the land disturbing

activities permitted on the site. Section 30 - 75 lists the penalties associated with violating the Ordinance.

The following agencies in the City of Virginia Beach are associated with enforcing the E&S Control and Tree Protection Ordinance:

- Department of Public Works
  - Highway Inspections Division
  - Waterfront Operations Bureau
  - Highway Construction
- Department of Permits and Inspections

Whenever there is a land disturbing activity on a site for which there are no approved E&S Control Plans, the Waterfront Operations Bureau takes the responsibility of enforcing the Ordinance. For all other Site Plan and Construction Plan activities in City rights-of-way, the Highway Inspections Division enforces the ordinance. The Department of Permits and Inspections is the lead agency for issuing the occupancy permits on all sites and residential sub-divisions and also enforces the E&S Ordinance for construction activities which are not in the City of Virginia Beach rights-of-way.

A surety bond based on $500.00 per acre (or fraction thereof) of the disturbed site is required by the applicant to be posted with the Department of Public Works' Business Office. After the site has been finally stabilized and accepted by the inspection staff of the Highway Inspections Division, the surety bond is released.

The following agencies of the City of Virginia Beach require and release their own bonding:

- Department of Public Works
  - Waterfront Operations
  - Highway Construction

2. Evaluation

During the interview process, lack of enforcement was the most vociferous comment made by all members of the staff. It was mentioned that enforcement does not receive enough attention. The inspection staff has other responsibilities and enforcing the City's E&S Control Ordinance is not their priority. This is not due to the inspectors' willful intentions. The inspectors' workloads are enormous and there are conflicting priorities.

As with the Inspection Process, the Highway Inspections Division should be the sole agency responsible for enforcement. The inspection staff should only be charged with the responsibility of enforcing the E&S Control Ordinance. The other duties not related to E&S Control, which are presently being performed by the inspection staff, should not be their responsibility. This could be performed by a sub-unit of the Highway Inspections Division.

One major problem which is encountered by the inspection staff is to hold the individual site builders within a subdivision responsible for E&S Control. The applicant, who is the developer of the subdivision, gets the E&S Control Plans approved and then sells the subdivision lots to different builders for the construction of individual homes. At times, on a single subdivision, there may be many different builders. This poses enforcement difficulties for the inspection staff.

In all cases, the developer who posts the bond for a subdivision should be held responsible for any neglect in following the approved E&S Control Plans. During the interview process, it was conveyed to the Consultant the futility of holding the developer accountable. This situation can be improved by modifying the pre-construction meeting note to include requiring the applicant and contractor/builder to contact the Highway Inspections Division before any land disturbing activity commences on any site. The importance of this has to be emphasized to the contractor or builder at the pre-construction meeting. The persistent and systematic conveying of this message should result in compliance by the building community.

The amount of surety bond presently required by the applicant to be posted with the Public Works' Business Office is of the amount of $ 500.00 per acre (or fraction thereof) of the disturbed site. During the interview process, it was pointed out by the members of the staff that this amount is inadequate. If the City has to correct any E&S Control related problem at any site, the surety bond amount, in all probability, will not cover the expenses incurred. It is recommended that the amount of surety bond for the E&S Control Plans should be the amount equal to the construction cost of the E&S Control measures required on the site plus the maintenance required for these measures during the construction phase of the project. The construction and maintenance cost estimates can be coordinated by the Department of Public Works, Engineering Division.

The State Law and the City Ordinance authorizes the City Engineer to require from the applicant a reasonable performance bond in the form of surety, cash escrow, letter of credit or any combination there of acceptable to the City Attorney. The City can easily increase the present bond amount of $500.00 per acre (or fraction thereof) of the disturbed site. This bond amount does not reflect the current construction, material, and maintenance costs.

The concerns of several builders working in one subdivision and the inability of the inspection staff to enforce the E&S Control Ordinance may be reduced appreciably by requiring the individual builders to post a surety bond with the developer of the site. The amount of this surety bond may depend on the number of individual builders on the site and the total construction and maintenance cost estimated as described above. It should be pointed out that this recommended step will entail additional office work and monitoring required by the inspection staff.

The present procedure of notice to comply and the issuance of stop work order, though meeting the State Law and the City Ordinance provisions, is very time consuming and cumbersome. It requires expending appreciable amount of time and effort by the inspection

staff and the Office of the City Attorney. This hinders the ability of the City's staff to implement the enforcement procedures.

The interview process also highlighted the fact that the amount of penalty for violations is inadequate. The State Law and the City Ordinance limits the fine amount not to exceed $ 1,000.00. This penalty amount is not considered to be a suitable deterrent to the applicant or the individual builders. This impacts the ability of the City's staff to enforce the Ordinance. The issue of raising the amount of the penalty is a legal matter and should be explored by the City. Raising the amount of the penalty could make the developer and the builders more aware of their responsibilities to meet the intent of the City's E&S Control Ordinance.

F. Current Staffing

1. Review

The agencies cited in the previous sections have been identified as concerned and connected with the City's Ordinance for controlling the migration of sediment to the receiving waters. The staff of the individual agencies have a myriad of other tasks to perform. Their primary function and responsibility is not E&S Control. For illustration purposes, the staff of Highway Inspections Division is assigned the responsibility of performing the following inspection functions besides inspection of E&S Controls and enforcement of the City's Ordinance:

- Drainage Installations
- Water and Sewer Open Cuts
- Grading and Excavating
- Base Construction
- Paving
- Curb & Gutter Placement
- Apron Installations

- Traffic Controls
- Street Name Signs
- Best Management Practices
- Engineers Estimates of Construction costs
- Certificates of Completion
- Moving and Hauling Permits
- Utility Permits
- Citizen Complaints and Inquiries
- Encroachments

The Plan Review Section has an extensive check list for Site and Construction Plans of which E&S Control measures is only one item. Waterfront Operations performs the complete review, inspection, enforcement and prosecution of construction activities related to marinas, piers, bulkheads, dredging, etc.. The Department of Permits and Inspections is solely responsible for the complete building inspection including structural, electrical and fire inspection.

Based on the personal interviews conducted with staff of the different departments, the following number of staff personnel have been identified which are partially connected with the E&S Control Program:

Agency	Number of Staff
Department of Public Works	
Plan Review Section	9
Waterfront Operations	6
Highway Inspections	18
Highway Construction	10
Department of Planning	6
Department of Permits and Inspections	10
Department of Agriculture	1

It is apparent that there are many staff members directly involved with the E&S Control process. But E&S Control is not the first priority of their job description and the complete, undivided attention which this Ordinance warrants is not feasible and forthcoming.

The current work load of the agencies is enormous. The following was ascertained during the interviews with key members of the agencies involved with the E&S program:

• Department of Public Works Plan Review Section	Site Plan reviews = 650 Construction Plan reviews = 150
• Department of Public Works Highway Inspections	Active Site Plans = 450 Active Construction Plans = 150
• Department of Planning	Plans reviewed = 1400

(Fiscal Year - 1988-89 estimates)

2. Evaluation

As was mentioned previously, the present City staff does not perform only the function of reviewing, inspecting and enforcing the E&S Control Program. Presently, the inspection staff devotes approximately less than 10% of their total time to E&S Control.

The following recommendations regarding staff are based on observations of effective control programs in other municipalities and states. The numbers stated should be used as guidelines and can be modified based on the City's staff experience and actual involvement in E&S Control. The staffing is for the E&S Control Program only. Other duties to be performed by the staff will require additional staff hours.

a) Plan Review and Approval

Based on the Consultant's experience with the evaluation of the State E&S Control Program, eight (8) hours per plan review should be adequate. This assumes a mix of project sizes and complexities. Also, it assumes that some plans are resubmissions. If it is assumed that the City receives a combined total of 800 Site Plans and Construction Plans per year (Based on fiscal year 1988-89 estimates), the Plan Review Section should provide a staff of 3.2 full time reviewers for the E&S Control Program. The computations are shown below:

$$\frac{8 \text{ hours}}{\text{plan}} \times \frac{800 \text{ plans}}{\text{year}} \times \frac{\text{year}}{250 \text{ days}} \times \frac{\text{day}}{8 \text{ hours}} = 3.2 \text{ reviewers}$$

b) Inspection

Inspection is related to the average number of active land disturbing projects ongoing at any given time. Based on 4 to 5 site visits per day, a single inspector solely devoted to E&S Control should be able to oversee about 100 projects at any given time. With approximately 600 combined Site Plans and Construction Plans active in the City, the Highway Inspection Division should provide a staff of 6 full time inspectors for E&S Control Program. The computations are shown below:

$$\frac{600 \text{ projects}}{100 \text{ projects}} \times \text{ inspectors} = 6 \text{ inspectors}$$

c) Enforcement

Some projects will require more time for enforcement than others. Assuming that about ten (10) percent of the active projects will require some type of enforcement, about 60 active projects will require action. Based on the earlier assumption of a single inspector able to oversee about 100 projects, the Highway Inspections Division should provide a staff of 0.6 full time inspectors for E&S Control Program enforcement. The computations are shown below:

$$600 \text{ projects} \quad 0.10 \times \frac{\text{inspectors}}{100 \text{ projects}} = 0.6 \text{ inspectors}$$

The above computations are shown as a guideline and do not include vacation and sick leave time. The total number of projects to be inspected by each inspector can be increased or decreased based on the City's experience with subdivision and site plan inspection. The total number of projects to be inspected and enforced also does not include the additional work, from the Waterfront Operations Bureau and the Highway Construction (C.I.P. Projects), which may be transferred to the Highway Inspections Division.

The total cost associated with reviewing, inspecting and enforcing the E&S Control Ordinance is computed as below:

Plan Review =	3.2 x Avg. Annual Salary of $ 30,000 =	$ 96,000
Inspection & Enforcement =	6.6 x Avg. Annual Salary of $ 22,500 =	$ 148,500
	Total	$ 244,500

Supervisory time is not included in the above hours. The salary amounts are estimates and do not include fringe benefits.

IV INTERAGENCY COORDINATION

During the interview process of the key members of the agencies, it was quite obvious that the staff is deeply interested in the E&S Control Program. The concern exhibited by all to control the deposition of sediment and to control erosion was exemplary. The sincere wish to perform better and the enthusiasm to do it was obvious. It seems that except for a few lapses, there is good coordination between the different agencies involved. It was mentioned by the members of the City staff to the Consultant, that, at times, the individual reviewer is not certain if his concerns have been conveyed to the applicant in the synthesized letter. The lapses are prone to occur when more than one agency is involved and the channels of communications are not well defined and clear. As discussed earlier under the Current Administration Organization Structure, an office coordinating the E&S Control Program should facilitate making the channels of communications well defined and clear.

With the implementation of Stormwater Management Ordinance (BMPs), the workload of the agencies has increased substantially. Reviewing the plans and the appropriateness of the BMPs to be installed requires additional time and careful scrutiny. The City Engineer's Office is the agency in the City responsible for the implementation of the Stormwater Management Ordinance. Installation of the BMP measures during the land disturbing activity requires careful construction methods and detailed inspection. A fragmented organization may lead to the wrong BMP devices being installed. Improper construction methods may result in improper functioning and early failure of the BMPs. BMPs require regular and continuous maintenance to function as intended and designed. It is suggested that the City explore the possibility of combining the review, inspection and enforcement of the Stormwater Management Ordinance with the E&S Control Ordinance. The scope of work of this evaluation does not allow the Consultant to explore this issue in any detail. The number of inspectors needed to inspect and enforce the E&S Control (as computed earlier) does not include the inspectors for enforcing the Stormwater Management Ordinance (BMP's).

The geographic information system (G.I.S.) currently being implemented by the City will become an excellent vehicle for coordination of E&S Control projects in the City. Not only will information be available to the review agency regarding the pre-project site conditions, but all proposed and active project locations can be stored in the G.I.S. In addtion, the G.I.S. database can be designed to contain review and inspection data, which will be useful in coordination and in potential enforcement actions. Inclusion of overlap related to E&S Control and stormwater management projects in the City G.I.S. is recommended.

V STAFF TRAINING

The State of Virginia Soil and Water Conservation Division has a training program for E&S Control and BMPs. A few members of the staffs of agencies in the City have attended the training seminars. Presently, there is no certification program in E&S Control available to the inspectors. The Plan Review Section has conducted training sessions for staff engineers and for contractors. On June 26, 1989, the City of Virginia Beach hosted a one-half day education and awareness program regarding E&S Control. The purpose of this program was to:

- bring about a greater interest in the Ordinance,
- stress the importance of the Ordinance,
- clarify and simplify the Ordinance,
- help eliminate long-term damages to wetlands and water quality,
- avoid unnecessary expenses to local development and builders, and
- establish and improve communication between the City of Virginia Beach and the construction and development community.

During the staff interviews, every member of the staff stressed the importance of training. It was highlighted that the inspectors need to know and understand the reasoning and logic for the different E&S Control measures, their proper installation techniques, and good inspection procedures. All the inspectors in the Highway Inspection Division and the reviewers in the Plan Review Section should attend a required training seminar consisting of lectures and slide presentations about the E&S Control measures and techniques. The training seminars can be formulated on the following guidelines:

E&S Control Measures	1 Day
Installation & Maintenance Techniques	1 Day
Inspection & Enforcement Procedures	1 Day

Each member of the City staff who has successfully attended the training seminar, should be awarded a certificate. The training seminar could be conducted by the City staff or an outside Consultant can be hired to plan and conduct the seminar. Speakers from other municipalities or agencies could be invited to participate.

The training seminars should be continued, improved, and expanded to provide a continuing educational process in E&S Control and stormwater management.

The costs associated with conducting the training seminars will vary. If they are conducted by the City staff, the funds can be a part of the operating budget of the City Engineers' Office. It is estimated to cost an amount of $ 150 - $ 200 per attendee to conduct the training seminar. The cost includes the course materials, and instructors' time and travel expenses.

The education and training of contractors is paramount. The applicant's representative in the field has to understand the consequences of uncontrolled erosion and sedimentation. The general public also needs to be made aware of the threat to the public waterways. Education and training is the key to warding off this problem. Other jurisdictions in the country have differing approaches to educate and train the contractors. The developers and contractors should also be encouraged to attend the training seminars. The City can charge the developers and contractors a reasonable amount to attend the seminars.

VI CONCLUSIONS

During the evaluation of the City of Virginia Beach E&S Control Program and the interviews, it became evident that there are three key elements that should be present for a successful program. These elements and their relevance to the City's program are described below:

a) Recognition of Need

For an E&S Control Program to be successful, elected or appointed officials, the City management and staff, developers, design consultants, and contractors must all recognize the need for E&S Control. Indifference by any of these people or groups will undermine implementation of a successful E&S Control Program. The City staff is extremely aware of the need of a successful program and have exhibited great enthusiasm in its implementation. Several members of the staff mentioned during the interview process that the City needs a champion for the cause of E&S Control. By establishing an office of E&S Control, a name identification will be created.

b) Adequate Ordinance, Administration & Organization Structure

Recognition of need on the part of elected officials and City management should lead to an adequate administrative standards and procedures. The Ordinance provides the legal basis for requiring controls and implementation. The City has a good Ordinance and it provides enforcement staff a means of assuring implementation. The City also has adequate administrative standards and procedures but there are several agencies involved in the plan review process, inspection, and enforcement of the E&S Control Program. The present organizational structure for E&S Control is fragmented and needs a moderate change. By establishing an Office of Erosion and Sediment Control, all E&S related activities of the City Manager's Office will be coordinated.

The present staff involved in plan review, inspection, and enforcement of the E&S Control Program has many other responsibilities to perform as set forth in their job descriptions. By providing the personnel, as recommended, to perform E&S Control functions exclusively, complete attention for implementing the E&S Control program will be provided. The costs incurred by the City to implement this recommendation will be the associated salaries and benefits of the necessary staff and supervisory personnel.

c) Training

Technical expertise is required for the staff to review and approve E&S Control plans. Technical expertise is also necessary for the inspectors to know whether E&S Control measures are being installed correctly and when to permit or require additional field modifications of approved plans. Technical expertise comes with training and experience. Both are necessary.

The staff of the City reviewing the E&S Control plans have the necessary education. During the interviews, it was mentioned that the plans are reviewed by engineers. The review staff needs to be trained in the proper selection of E&S Control measures. The inspection staff of the City needs the most training in E&S Control measures. This training should be mostly for field inspectors, but the office staff may also be made familiar with E&S Control measures. The training can be provided by the City staff or an outside consultant can be hired. Each member of the staff involved with the E&S Control Program should have a certificate showing that they have satisfactorily completed an approved training seminar.

Based on the Consultant's evaluation, the City's E&S Control Program is adequate and has certain strengths. The strength is the dedicated staff and their awareness of E&S issues. The program can be effectively improved by instituting the moderate to minor changes recommended in the evaluation.

VII RECOMMENDATIONS

As described in the report, the City of Virginia Beach E&S Control Program is implemented by various agencies within the city. There are dedicated and effective personnel involved in the program and the effectiveness of the program is and will be the direct result of their efforts.

The following recommendations are made to improve and enhance the effectiveness of the program:

a) Establish an office to coordinate the activities of E&S Control Program.

The City needs an Office of Erosion and Sediment Control to coordinate the E&S Control activities of the different agencies of the City Manager's Office. This office should be the central agency for the general public and the building community to contact and obtain information. As suggested, this office can be under the Department of Public Works or the Office of Environmental Management.

b) Establish clear cut review, inspection, and enforcement responsibilities.

The present organization of the Department of Public Works, Engineering Division, Plan Review Section should continue. Full time plan reviewers should be assigned to review only E&S Control plans. The pre-construction meeting note should be modified to include the phone number and the name of the contact person in the Highway Inspection Division. Institute an additional step in the review process to coordinate the comments made by the individual reviewer, before the authorization letter is mailed to the applicant.

c) Establish a central sub-unit or section in the Highway Inspection Division to inspect all sites and enforce the E&S Control Program.

d) Establish a certification program for the plan reviewers and the inspectors.

The certification program sponsored by the State is not in effect at this time. The City can conduct its own training program with the help of its staff or an outside consultant. The training seminar for this program should include material for E&S Control measures, installation and maintenance techniques of these measures and inspection and enforcement procedures. An examination/test should be included in the program and should be successfully passed prior to certification.

e) Make education and training a priority for review engineers and inspectors.

The City should make an effort to encourage the engineers and inspectors to attend continuing education and training. Any coursework or training obtained by the staff should be rewarded by promotions or other financial incentives.

f) Increase the surety bond and the penalty amount.

The City should base the amount of the surety bond on the construction and maintenance costs associated with the E&S Control measures. This will enhance the ability of the staff to enforce the Ordinance. Higher bond and penalty amounts may deter the applicant and the builder from acting in a negligent manner.

g) Conduct awareness programs.

The City should conduct sessions for the general public and the building community about the consequences of uncontrolled erosion on the environment. This can be accomplished by presentation of films, publishing articles and public forums. The City is already doing this but the importance of the awareness programs should not be minimized.

h) Include the E&S Control Ordinance with the Development Review Ordinance

Including the E&S Control Ordinance with other City ordinances like zoning, subdivision, site plan, and stormwater management, should make the building community aware of its requirements for developing any site.

i) Design the City G.I.S. database to include E&S Control.

The City G.I.S. should contain information on the locations and status of E&S Control projects. The data will be useful for coordination between agencies and for any necessary enforcement actions.

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