

## CERTIFICATION OF PLAN ACCURACY

I hereby certify that, to the best of my knowledge, the plan shown and described hereon is true and correct to the accuracy required by the Rapho Township Subdivision and Land Development Ordinance.

\_\_\_\_\_, 20\_\_ \* \_\_\_\_\_

- \* Signature and seal of a professional registered in the Commonwealth of Pennsylvania qualified to perform such duties and responsible for the preparation of the plan.

## CERTIFICATION OF SURVEY ACCURACY

I hereby certify that, to the best of my knowledge, the survey shown and described hereon is true and correct to the accuracy required by the Rapho Township Subdivision and Land Development Ordinance.

\_\_\_\_\_, 20\_\_ \* \_\_\_\_\_

- \* Signature and seal of a professional registered in the Commonwealth of Pennsylvania qualified to perform such duties and responsible for the preparation of the plan.

# STORM DRAINAGE PLAN CERTIFICATION

I hereby certify that, to the best of my knowledge, the storm drainage facilities shown and described hereon are designed in conformance with the Rapho Township Subdivision and Land Development Ordinance.

\_\_\_\_\_, 20\_\_ \* \_\_\_\_\_

- Signature and seal of a professional registered in the Commonwealth of Pennsylvania qualified to perform such duties and responsible for the preparation of the storm drainage plan.

## CERTIFICATE OF OWNERSHIP, ACKNOWLEDGEMENT OF PLAN, AND OFFER OF DEDICATION

(INDIVIDUAL)

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF LANCASTER

On this, the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, before me, the undersigned officer, personally appeared \_\_\_\_\_, who being duly sworn according to law, deposes and says that he is the \* \_\_\_\_\_ of the property shown on this plan, that the plan thereof was made at his direction, that he acknowledges the same to be his act and plan, that he desires the same to be recorded, and that all streets and other property identified as proposed public property (excepting those areas labeled "NOT FOR DEDICATION") are hereby dedicated to the public use.

\*\* \_\_\_\_\_

\*\*\* \_\_\_\_\_

My Commission Expires \_\_\_\_\_, 20\_\_

- \* Identify Ownership or Equitable Ownership
- \*\* Signature of the Individual
- \*\*\* Signature and Seal of Notary Public or Other Authorized to Acknowledge Deeds.

**CERTIFICATE OF OWNERSHIP, ACKNOWLEDGEMENT OF PLAN,  
AND OFFER OF DEDICATION**

**(COPARTNERSHIP)**

**COMMONWEALTH OF PENNSYLVANIA**

**COUNTY OF LANCASTER**

On this, the \_\_\_ day of \_\_\_\_\_, 20\_\_\_, before me, the undersigned officer, personally appeared \_\_\_\_\_, being the members of the firm of \_\_\_\_\_ who being duly sworn according to law, deposes and says that the copartnership is the \* \_\_\_\_\_ of the property shown on this plan, that the plan thereof was made at its direction, that it acknowledges the same to be its act and plan and desires the same to be recorded, and that all streets and other property identified as proposed public property (excepting those areas labeled "NOT FOR DEDICATION") are hereby dedicated to the public use.

\*\* \_\_\_\_\_

\*\*\* \_\_\_\_\_

My Commission Expires \_\_\_\_\_, 20\_\_\_

- \* Identify Ownership or Equitable Ownership
- \*\* Signature of the Individual
- \*\*\* Signature and Seal of Notary Public or Other Officer Authorized to Acknowledge Deeds.

**CERTIFICATE OF OWNERSHIP, ACKNOWLEDGEMENT OF PLAN,  
AND OFFER OF DEDICATION**

**(CORPORATE)**

**COMMONWEALTH OF PENNSYLVANIA**

**COUNTY OF LANCASTER**

On this, the \_\_\_ day of \_\_\_\_\_, 20\_\_\_, before me, the undersigned officer, personally appeared \_\_\_\_\_, being \* \_\_\_\_\_ of \*\* \_\_\_\_\_ who being duly sworn according to law, deposes and says that the corporation is the \*\*\* \_\_\_\_\_ of the property shown on this plan, that he is authorized to execute said plan on behalf of the corporation, that the plan is the act and deed of the corporation, that the corporation desires the same to be recorded and on behalf of the corporation further acknowledges, that all streets and other property identified as proposed public property (excepting those areas labeled "NOT FOR DEDICATION") are hereby dedicated to the public use.

\*\*\*\* \_\_\_\_\_

\*\*\*\*\* \_\_\_\_\_

\*\*\*\*\* \_\_\_\_\_

My Commission Expires \_\_\_\_\_, 20\_\_

- \* Individual's Title
- \*\* Name of Corporation
- \*\*\* Identify Ownership or Equitable Ownership
- \*\*\*\* Signature of Individual
- \*\*\*\*\* Corporate Seal
- \*\*\*\*\* Signature and Seal of Notary Public or Other Officer Authorized to Acknowledge Deeds

**RAPHO TOWNSHIP BOARD OF SUPERVISORS  
PRELIMINARY PLAN APPROVAL CERTIFICATE**

At a meeting on \_\_\_\_\_, 20\_\_\_\_, the Rapho Township Board of Supervisors granted PRELIMINARY PLAN APPROVAL of this project, including the complete set of plans marked sheet(s) \_\_\_\_\_ through \_\_\_\_\_ which form a part of the application dated \_\_\_\_\_, last revised \_\_\_\_\_, and bearing Rapho Township File No. \_\_\_\_\_. This plan may not be recorded in the office of the Lancaster County Recorder of Deeds, nor may any construction be initiated.

\* \_\_\_\_\_

\* Signature of the Chairman or Vice Chairman or their designee.

**RAPHO TOWNSHIP BOARD OF SUPERVISORS  
IMPROVEMENT CONSTRUCTION PLAN APPROVAL  
CERTIFICATE**

At a meeting on \_\_\_\_\_, 20\_\_\_\_, the Rapho Township Board of Supervisors granted IMPROVEMENT CONSTRUCTION PLAN APPROVAL of this plan, bearing Rapho Township File No. \_\_\_\_\_. When combined with the necessary Township and/or Commonwealth approvals and permits, this approval grants the authority to install the improvements required by the Rapho Township Subdivision and Land Development Ordinance. This plan may not be recorded in the office of the Lancaster County Recorder of Deeds.

\* \_\_\_\_\_

\* Signature of the Chairman or Vice Chairman or their designee.

**RAPHO TOWNSHIP BOARD OF SUPERVISORS  
FINAL PLAN APPROVAL CERTIFICATE**

At a meeting held on \_\_\_\_\_, 20\_\_\_\_, the Rapho Township Board of Supervisors approved this project including the complete set of plans and information which are filed with the Supervisors in File No. \_\_\_\_\_, based upon its conformity with the standards of the Rapho Township Subdivision and Land Development Ordinance.

\* \_\_\_\_\_

\* Signature of the Chairman or Vice Chairman or their designee.

**RAPHO TOWNSHIP BOARD OF SUPERVISORS  
APPROVAL CERTIFICATE FOR A LOT ADD-ON PLAN**

This lot add-on plan, bearing Rapho Township File No. \_\_\_\_\_, approved by the Rapho Township Board of Supervisors this \_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\* \_\_\_\_\_

\* Signature of the Chairman or Vice Chairman or their designee.

**RAPHO TOWNSHIP ENGINEER  
REVIEW CERTIFICATE**

Reviewed by the Rapho Township Engineer this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\* \_\_\_\_\_

\* Signature of the Rapho Township Engineer.

**RAPHO TOWNSHIP PLANNING COMMISSION  
REVIEW CERTIFICATE**

At a meeting held on \_\_\_\_\_, 20\_\_\_\_, the Rapho Township Planning Commission reviewed this plan and a copy of the review comments is on file in the Township office.

\* \_\_\_\_\_ \* \_\_\_\_\_

\* Signatures of the Chairman or Vice Chairman or their designee.

**LANCASTER COUNTY PLANNING COMMISSION  
REVIEW CERTIFICATE**

The Lancaster County Planning Commission, as required by the Pennsylvania Municipalities Planning Code, Act 247 of 1968, as amended, reviewed this plan on \_\_\_\_\_, 20\_\_\_\_, and a copy of the review is on file at the office of the Planning Commission in LCPC File No. \_\_\_\_\_. This certificate does not indicate approval or disapproval of the plan by the Lancaster County Planning Commission, and the Commission does not represent nor guarantee that this plan complies with the various ordinances, rules, regulations, or laws of the local municipality, the Commonwealth or the Federal government.

\* \_\_\_\_\_ \* \_\_\_\_\_

\* Signatures of the Chairman or Vice Chairman or their designee.

**RECORDER OF DEEDS CERTIFICATE**

Recorded in the office for Recording of Deeds, in and for Lancaster County, Pennsylvania, in Subdivision Plan Book \_\_\_\_\_, Volume \_\_\_\_\_, Page \_\_\_\_\_. Witness by hand and seal of office this \_\_\_\_\_ day of \_\_\_\_\_ AD 20\_\_\_\_.

\_\_\_\_\_  
Recorder

**APPLICATION FOR CONSIDERATION FOR A SUBDIVISION  
AND/OR LAND DEVELOPMENT PLAN**

RT FILE NO. \_\_\_\_\_

DATE OF RECEIPT/FILING \_\_\_\_\_  
(FOR TOWNSHIP USE ONLY)

The undersigned hereby applies for approval under the Rapho Township Subdivision and Land Development Ordinance of 2000 for the (Subdivision) (Land Development) Plan submitted herewith and described below:

1. Plan Name \_\_\_\_\_ Plan No. \_\_\_\_\_ Plan Date \_\_\_\_\_

2. Project Location \_\_\_\_\_

3. Name of Applicant (if other than owner) \_\_\_\_\_

Address \_\_\_\_\_ Phone No. \_\_\_\_\_

4. Name of Property Owner(s) \_\_\_\_\_

Address \_\_\_\_\_ Phone No. \_\_\_\_\_

5. Land Use and Number of Lots and/or Units (indicate answer by number):

\_\_\_ Single-Family (Detached)                      \_\_\_ Commercial

\_\_\_ Multi-Family (Attached-Sale)                      \_\_\_ Industrial

\_\_\_ Multi-Family (Attached-Rent)                      \_\_\_ Institutional

6. Total Acreage \_\_\_\_\_

7. Application Classification: (Check One)

\_\_\_ Preliminary Plan                                              \_\_\_ Final Plan

\_\_\_ Lot Add-On Plan for processing  
In accordance with Section 308  
of the Ordinance.                                              \_\_\_ Revised Subdivision and/or Land  
Development Plan for processing  
In accordance with Section 308 of  
the Ordinance.

\_\_\_ Minor Plan                                                                      \_\_\_ Improvement Construction Plan

8. Firm That Prepared Plan \_\_\_\_\_  
 Address \_\_\_\_\_ Phone No. \_\_\_\_\_  
 Person Responsible for Plan \_\_\_\_\_
9. Have all zoning approvals been obtained? \_\_\_Y\_\_\_N Please specify approvals:  
 \_\_\_\_\_
10. Type of water supply proposed: \_\_\_Public\_\_\_ \_\_\_Community\_\_\_ \_\_\_Individual\_\_\_
11. Type of sanitary sewer disposal proposed: \_\_\_Public\_\_\_ \_\_\_Live\_\_\_ \_\_\_Community\_\_\_  
 \_\_\_Capped\_\_\_ \_\_\_Individual\_\_\_
12. Lineal feet of new street \_\_\_\_\_  
 Identify all street(s) not proposed for dedication: \_\_\_\_\_  
 \_\_\_\_\_
13. Acreage proposed for park or other public use: \_\_\_\_\_
14. Have plans been submitted to the Lancaster County Planning Commission? \_\_\_Y\_\_\_N
15. Have plans been submitted to the Lancaster County Conservation District? \_\_\_Y\_\_\_N
16. Have plans been submitted to the PA Department of Environmental Protection? \_\_\_Y\_\_\_N
17. Have plans been submitted to any other review agency? \_\_\_Y\_\_\_N. If so, please specify? \_\_\_\_\_

I am aware that I cannot commence development of the property and cannot commence excavation, earthmoving, grading, or construction until a plan has been recorded in the office of the Recorder of Deeds or until an Improvement Construction Plan has been approved by the Board of Supervisors of the Township of Rapho. By signing this application, I certify that all facts in the application and all accompanying documentation are true and correct. This application is being made by me to induce official action on the part of Rapho Township, and I understand that any false statements made herein are being made subject to the penalties of 18 Pa. C.S. Section 4904 relating to unsworn falsification to authorities.

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Signature of Landowner or Applicant



**REQUEST FOR A REVIEW OF A SUBDIVISION OR LAND  
DEVELOPMENT PLAN BY THE LANCASTER COUNTY PLANNING  
COMMISSION  
(To Be Submitted By Applicant)**

LCPC FILE NO: \_\_\_\_\_

DATE OF RECEIPT: \_\_\_\_\_  
(FOR COMMISSION USE ONLY)

**TO:** Lancaster County Planning Commission  
50 North Duke Street  
P.O. Box 3480  
Lancaster, Pennsylvania 17608-3480

**SUBJECT:** Request for Review of a Subdivision or Land Development Plan, Rapho Township

We do hereby request the Lancaster County Planning Commission to review the enclosed subdivision or land development plan in accordance with the Pennsylvania Municipalities Planning Code, Act 247 of 1968, as amended, Article V, Section 502.

Plan Identification (check or complete the following items):

Sketch Plan                      Municipal Plan No. (if any) \_\_\_\_\_  
 Preliminary Plan                Plan Name: \_\_\_\_\_  
 Final Plan

Other (specify) \_\_\_\_\_

Name of Landowner(s) \_\_\_\_\_

Address \_\_\_\_\_

Additional Comments \_\_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Full Name

\_\_\_\_\_  
Title

# NOTICE OF ACCEPTANCE OF AN IMPROVEMENT GUARANTEE

DATE: \_\_\_\_\_

Rapho Township Board of Supervisors  
971 North Colebrook Road  
Manheim, PA 17545

**SUBJECT:** Acceptance of Improvement Guarantee

Dear Supervisors:

The developer of the project known as \_\_\_\_\_ has provided an improvement guarantee in the form of a \_\_\_\_\_ to assure the proper installation of the following improvements:

Roadway Improvements       Storm Sewer Facilities  
 Sanitary Sewer Facilities       Water Supply Facilities       Fire Hydrants

This form of improvement guarantee was accepted by formal action of the Board of Supervisors at a meeting on \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Authorized Signature

# REQUIRED IMPROVEMENTS COST ESTIMATE

Plan Name: \_\_\_\_\_

The following form is to be used to prepare the Improvements Cost Estimate as required per Article V. Attach additional sheets if necessary:

<u>Improvements</u>	<u>Quantity</u>	<u>Units</u>	<u>Price Per Unit</u>	<u>Construction Cost</u>
Street Grading	_____	_____	_____	_____
Street Subbase	_____	_____	_____	_____
Street Binder Course	_____	_____	_____	_____
Street Wearing Course	_____	_____	_____	_____
Street Signs	_____	_____	_____	_____
Traffic Control Signs	_____	_____	_____	_____
Curbs	_____	_____	_____	_____
Sidewalks	_____	_____	_____	_____
Storm Sewer Facilities	_____	_____	_____	_____
Sanitary Sewer Facilities	_____	_____	_____	_____
Water Supply Facilities	_____	_____	_____	_____
Fire Hydrants	_____	_____	_____	_____
Survey Monuments	_____	_____	_____	_____
Buffer Planting	_____	_____	_____	_____
Street Trees	_____	_____	_____	_____
Other (specify)	_____	_____	_____	_____

<b>ESTIMATED COST:</b>	\$ _____
<b>CONTINGENCIES (10%):</b>	\$ _____
<b>INSPECTION FEE DEPOSIT (5%):</b>	\$ _____
<b>REQUIRED ESCROW:</b>	\$ _____

SIGNATURE OF ENGINEER \_\_\_\_\_

*Seal*

DATE \_\_\_\_\_

# NOTICE OF COMPLETION AND APPROVAL OF IMPROVEMENTS

DATE: \_\_\_\_\_

Rapho Township Board of Supervisors  
971 North Colebrook Road  
Manheim, PA 17545

**SUBJECT:** Approval of Improvements

Dear Supervisors:

The developer of the project known as \_\_\_\_\_ has completed the installation of the following improvements in accordance with the improvement construction plan:

Roadway Improvements       Storm Sewer Facilities  
 Sanitary Sewer Facilities       Water Supply Facilities       Fire Hydrant  
 Other (specify) \_\_\_\_\_

\_\_\_\_\_ Authorized Signature

\_\_\_\_\_ Print Full Name

\_\_\_\_\_ Title

\_\_\_\_\_ Authority of Utility

\_\_\_\_\_ Address

\_\_\_\_\_ Phone No.

# APPLICATION FOR CONSIDERATION OF A MODIFICATION

RT FILE NO. \_\_\_\_\_

DATE OF RECEIPT/FILING \_\_\_\_\_  
(FOR TOWNSHIP USE ONLY)

The undersigned hereby applies for approval of modification, submitted herewith and described below:

1. Name of Project \_\_\_\_\_
2. Project Location \_\_\_\_\_
3. Name(s) of Applicant (if other than owner) \_\_\_\_\_  
Address \_\_\_\_\_  
Phone No. \_\_\_\_\_
4. Name of Property Owner(s) \_\_\_\_\_  
Address \_\_\_\_\_  
Phone No. \_\_\_\_\_
4. Specify section(s) of the Rapho Township Subdivision and Land Development Ordinance for which waiver is requested \_\_\_\_\_  
\_\_\_\_\_
6. The proposed alternative to the requirement \_\_\_\_\_  
\_\_\_\_\_
7. Justification for the waiver: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. Identification of plans, reports or supplementary data which is part of the application:  
\_\_\_\_\_

The undersigned hereby represents that, to the best of his knowledge and belief, all information listed above is true, correct and complete.

**RAPHO TOWNSHIP**  
**ACCESSORY DWELLING GUIDELINES**  
(Resolution 2000-7)

**PURPOSE**

The Rapho Township Board of Supervisors desires to develop a policy, procedure, and guidelines to assist agricultural landowners with providing accessory dwellings units for immediate family members or farm help, and to provide other landowners with the ability to provide assisted living arrangements for immediate family members in accordance with the provisions of the Zoning Ordinance.

**BACKGROUND**

The use of accessory dwellings for on-farm use and assisted living continues to increase within Rapho Township. These dwellings generally take the form of a separate dwelling constructed on the site, a mobile home placed on the site, or an addition to an existing dwelling which effectively creates a two-family dwelling. Generally speaking, this process requires some type of approval under the applicable subdivision and land development ordinance.

The Rapho Township Board of Supervisors believe that compliance with all of the requirements of the Rapho Township Subdivision and Land Development Ordinance for the purpose of providing accessory dwellings can be a timely and expensive process as these projects typically have a minimal impact or be of a temporary nature.

The Rapho Township Board of Supervisors hereby adopts these guidelines, by resolution and as may be revised from time to time as deemed necessary by the Township, for inclusion within the Appendix of the Rapho Township Subdivision and Land Development Ordinance.

**PROCEDURE**

Accessory Dwelling Units shall be processed in accordance with the following procedure:

1. The applicant shall prepare a sketch plan and a narrative explaining the proposed use. The plan and narrative needs to be detailed enough to demonstrate compliance with the applicable provisions of the Zoning Ordinance and these guidelines.
2. The applicant shall submit the plan and narrative along with a plan preparation modification request in accordance with Sections 309 and 802 of the Rapho Township Subdivision and Land Development Ordinance.
3. The modification request shall processed in accordance with the procedures outlined in Sections 309 and 802 of the Rapho Township Subdivision and Land Development Ordinance.
4. If deemed appropriate, and at the sole discretion of the Township, the modification request shall be approved subject to the continued compliance with these guidelines and any other conditions the Planning Commission or Board of Supervisors deems necessary to carry out the intent of the Township's ordinances.

5. The Township and the landowner shall enter into a mutually beneficial Agreement, as provided for by the Township, that sets forth the purpose of the accessory dwelling unit, the limitations on the re-use of the accessory dwelling, and the level of and types of approvals necessary for the construction or installation of the accessory dwelling.
6. The Agreement shall be recorded in the office of the Recorder of Deeds. Upon proof of recordation of the Agreement, the applicant shall have the necessary approvals under the Rapho Township Subdivision and Land Development Ordinance for the placement of an accessory dwelling unit..

#### **ACCESSORY DWELLING GUIDELINES**

Accessory Dwelling Units shall be subject to the following guidelines:

1. The accessory dwelling shall comply with the use, lot, area, and setback requirements of the Zoning Ordinance;
2. The proposed dwelling shall be provided with safe and suitable access and parking that complies with the requirements of applicable Township ordinances;
3. The proposed dwelling shall be served by an adequate water source and an approved method of sewage disposal;
4. The accessory dwelling shall be subject to yearly reviews to insure compliance with the approvals;
5. The landowner shall enter into an agreement with the Township, which shall be recorded, that sets forth the understandings and limitations of the accessory dwelling unit; and,
6. The change in use of the accessory dwelling to any use not specifically approved by the Township shall require additional approvals by the Township, including, but not limited to approval under the Rapho Township Subdivision and Land Development Ordinance.

## **SAMPLE LEGAL DOCUMENTS**

Exhibit A - Improvement Guarantee Agreement - Letter of Credit (Example)

Exhibit B - Improvement Guarantee Agreement - Cash (Example)

Exhibit C - Irrevocable Letter of Credit (Example)

Exhibit D - Demand for Payment (Example)

**EXHIBIT A**  
**IMPROVEMENT GUARANTEE AGREEMENT - LETTER OF CREDIT**

**THIS AGREEMENT** is made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and among **Rapho Township**, 971 North Colebrook Road, Manheim, Lancaster County, Pennsylvania, a political subdivision of the Commonwealth of Pennsylvania, hereinafter called "Township"; and \_\_\_\_\_ of \_\_\_\_\_, Pennsylvania 17\_\_\_\_, hereinafter collectively called "Owner".

**WITNESSETH:**

**WHEREAS**, Owner is required to build certain improvements according to the Final Plan prepared by \_\_\_\_\_, known as \_\_\_\_\_ Plan for \_\_\_\_\_, Plan No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_\_\_, and last revised \_\_\_\_\_, 20\_\_\_\_, hereinafter called "Plan"; and

**WHEREAS**, Township requires that security be established to ensure construction in compliance with Township ordinances and resolutions; and

**WHEREAS**, Bank is willing to provide letter of credit for the funds required to complete construction in compliance with Township's ordinances and resolutions.

**NOW, THEREFORE**, in consideration of the mutual covenants and promises contained therein, the parties do agree as follows:

**ARTICLE I:** Owner will obtain from Bank a letter of credit in order to provide funds in the amount of \_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_) to insure the improvements set forth in the engineer's certification of costs marked Exhibit "A", attached hereto and made a part hereof are completed in a accordance with the Township's specifications.

**ARTICLE II:** If Owner defaults or abandons the construction of the improvements required by the Plan or if the Bank sends Township a notice of Bank's intention not to renew the Letter of Credit, Township may draw on the Letter of Credit securing the construction of the improvements. The Letter of Credit shall be in the form attached to this Agreement, marked as Exhibit "B" and is incorporated by reference herein.

**ARTICLE III:** Township, by its Engineer or other designated person, will observe the construction of the improvements at progressive stages of completion as deemed necessary by the Township.

**ARTICLE IV:** In the event there is a difference of opinion as to the quality of the work completed, or as to the completion of the work to meet Township's specifications, the decision of Township's representative shall control and Owner's obligation to maintain the Letter of Credit shall continue until the work is in compliance with Township's specifications.

**ARTICLE V:** It is intended that all improvements built pursuant to the Plan shall be private until offered for dedication and formally accepted by the Township pursuant to Article V.

**ARTICLE VI:** Upon satisfactory completion of the improvements under this Agreement, Township agrees to make a final observation and release Owner from any obligation to maintain the Letter of Credit if the improvements meet Township's specifications. Despite final observation, all improvements shall be deemed to be private improvements until such time as the same have been offered for dedication and formally accepted by the Township by ordinance, resolution, deed or other formal document.

**ARTICLE VII:** Legal, engineering, observation, and administration costs incurred by Township under this Agreement in regard to the improvements set forth in Exhibit "A" shall be paid by Owner. All said fees must be paid in full before the Letter of Credit is released.

**ARTICLE VIII:** All improvements as specified herein shall be completed on or before one (1) year from the date hereof. Should said improvements not be completed, then and in the event Township's Engineer may notify the Township that the Owner has defaulted. Upon written application, the Supervisors, at their discretion, may extend from time to time the one year period by not more than two additional years by formal resolution.

**ARTICLE IX:** The specifications for the various improvements are those set forth on the Plan. All improvements are to be constructed in compliance with the ordinance, resolutions, and regulations of the Township, all of which are by reference are made a part hereof.

**ARTICLE X:** Township will, prior to the final release at the time of completion and final review by the Engineer, require a maintenance guarantee in the amount of fifteen (15) percent of the estimated costs of the improvements specified herein, for a period of eighteen (18) months.

**ARTICLE XI:** Owner agrees to pay all costs involved in establishing and servicing the Letter of Credit with the Bank.

**ARTICLE XII:** This Agreement shall be construed, performed and enforced in accordance with the laws of the Commonwealth of Pennsylvania.

**ARTICLE XIII:** This Agreement is not transferable, without the consent of the Township, which consent shall not be unreasonably withheld.

**ARTICLE XIV:** This Agreement sets forth the entire Agreement and understanding among the parties as to the subject matter thereof and may be amended subsequent to the date hereof in writing and signed by the party to be bound hereby.

**IN WITNESS THEREOF,** and intending to be legally bound thereby, the parties hereto have caused these presents to be executed and their corporate seals thereunto affixed, the day and year first written above.

**RAPHO TOWNSHIP**

BY: \_\_\_\_\_

BY: \_\_\_\_\_

BY: \_\_\_\_\_

\_\_\_\_\_

(Owner)

**EXHIBIT B**  
**IMPROVEMENT GUARANTEE AGREEMENT - CASH**

**THIS AGREEMENT** is made this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_, by and among **Rapho Township**, 971 North Colebrook Road, Manheim, Lancaster County, Pennsylvania, a political subdivision of the Commonwealth of Pennsylvania, hereinafter called "Township"; and \_\_\_\_\_ of \_\_\_\_\_, Pennsylvania 17\_\_\_, hereinafter collectively called "Owner".

**WITNESSETH:**

**WHEREAS**, Owner is required to build certain improvements according to the Final Plan prepared by \_\_\_\_\_, known as \_\_\_\_\_ Plan for \_\_\_\_\_, Plan No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_\_, and last revised \_\_\_\_\_, 20\_\_\_, hereinafter called "Plan"; and

**WHEREAS**, Township requires that security be established to ensure construction in compliance with Township ordinances and resolutions; and

**WHEREAS**, Owner is willing to provide cash security for the funds required to complete construction in compliance with Township's ordinances and resolutions.

**NOW, THEREFORE**, in consideration of the mutual covenants and promises contained therein, the parties do agree as follows:

**ARTICLE I:** Owner will deposit with Township cash in the amount of \_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_) to be held by Township in an interest bearing account using Owner's Social Security Number or Tax Identification Number, as security for owner's obligation to properly construct the improvements set forth on the Plan to Township's satisfaction and to reimburse Township for its observation and administration expenses. Attached hereto and marked Exhibit "B" is a copy of the estimated costs of the improvements prepared by the Owner and approved by the Township's Engineer.

**ARTICLE II:** If Owner defaults or abandons the construction of the said improvements set forth in the Plan, the Township may complete the said improvements using the escrowed funds hereinbefore mentioned to pay for said improvements.

**ARTICLE III:** Township, by its Engineer or other designated person, will observe the construction of the improvements at progressive stages of completion as deemed necessary by the Township.

**ARTICLE IV:** In the event there is a difference of opinion as to the quality of the work completed, or as to the completion of the work to meet Township's specifications, the decision of Township's representative shall control and Owner's obligation to provide the cash security shall continue until the work is in compliance with Township's specifications.

**ARTICLE V:** It is intended that all improvements built pursuant to the Plan shall be private until offered for dedication and formally accepted by the Township pursuant to Article V.

**ARTICLE VI:** Upon satisfactory completion of the improvements under this Agreement, Township agrees

to make a final observation and release Owner from any obligation to maintain the Letter of Credit if the improvements meet Township's specifications. Despite final observation, all improvements shall be deemed to be private improvements until such time as the same have been offered for dedication and formally accepted by the Township by ordinance, resolution, deed or other formal document.

**ARTICLE VII:** Legal, engineering, observation, and administration costs incurred by Township under this Agreement in regard to the improvements set forth in Exhibit "A" shall be paid by Owner. All said fees must be paid in full before the Letter of Credit is released.

**ARTICLE VIII:** All improvements as specified herein shall be completed on or before one (1) year from the date hereof. Should said improvements not be completed, then and in the event Township's Engineer may notify the Township that the Owner has defaulted. Upon written application, the Supervisors, at their discretion, may extend from time to time the one year period by not more than two additional years by formal resolution.

**ARTICLE IX:** The specifications for the various improvements are those set forth on the Plan last revised and any accompanying documents and shall be constructed in compliance with the ordinances, resolutions, and regulations of Township, all of which are by reference made a part hereof.

**ARTICLE X:** Township will, prior to the final release at the time of completion and final review by its Engineer, require a maintenance guarantee in the amount of fifteen (15%) percent of the estimated costs of the improvements specified herein, for a period of eighteen (18) months.

**ARTICLE XI:** Owner agrees to pay all costs involved in establishing and servicing the Letter of Credit with the Bank.

**ARTICLE XII:** This Agreement shall be construed, performed and enforced in accordance with the laws of the Commonwealth of Pennsylvania.

**ARTICLE XIII:** This Agreement is not transferable, without the consent of Township, which consent shall not be unreasonably withheld.

**ARTICLE XIV:** This Agreement sets forth the entire Agreement and understanding among the parties as to the subject matter thereof and may be amended subsequent to the date hereof in writing and signed by the party to be bound hereby.

**IN WITNESS WHEREOF,** and intending to be legally bound thereby, the parties hereto have caused these presents to be executed and their corporate seals thereunto affixed, the day and year first above written.

**RAPHO TOWNSHIP**

BY: \_\_\_\_\_

BY: \_\_\_\_\_

BY: \_\_\_\_\_

\_\_\_\_\_

(Owner)



Payment under this Letter will be available by your draft accompanied by your certification, in writing, signed by Municipality, any member of your governing body, any of your officers or your authorized representative, that developer has failed to complete the public improvements set forth in the Final Plan in accordance with your standards.

Partial drawings are permitted but the aggregate total may not exceed the amount stated above.

Drafts under this Letter should be marked: "drawn under Letter of Credit No. \_\_\_\_\_ dated \_\_\_\_\_ from the \_\_\_\_\_ (Name of Bank)."

This credit is subject to the "Uniform Customs and Practice for Documentary Credits (1983 revision), International Chamber of commercial Publication No. 400."

Yours truly,

\_\_\_\_\_  
Name of lender

BY: \_\_\_\_\_  
Authorized signature

BY: \_\_\_\_\_  
Authorized signature

**EXHIBIT D  
DEMAND FOR FINAL PAYMENT**

TO: \_\_\_\_\_ Bank

Attention:

We hereby demand payment to the Rapho Township Supervisors the sum of \_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_ ) and certify that this demand is due to failure of \_\_\_\_\_ to complete to our satisfaction improvements on \_\_\_\_\_, Drawing No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_\_\_, for development known as \_\_\_\_\_, recorded in \_\_\_\_\_.

ATTEST:

**RAPHO TOWNSHIP SUPERVISORS**

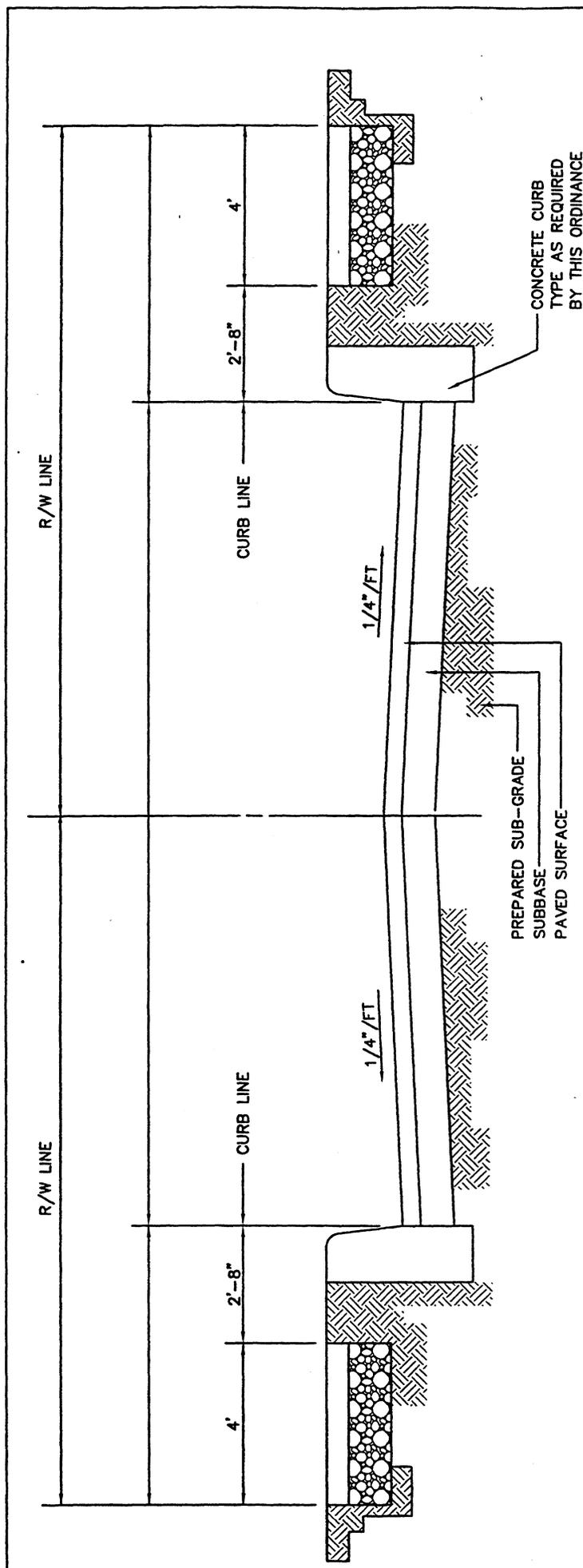
BY: \_\_\_\_\_

BY: \_\_\_\_\_

BY: \_\_\_\_\_

BY: \_\_\_\_\_

DATE: \_\_\_\_\_



## TYPICAL LOCAL STREET CROSS SECTION

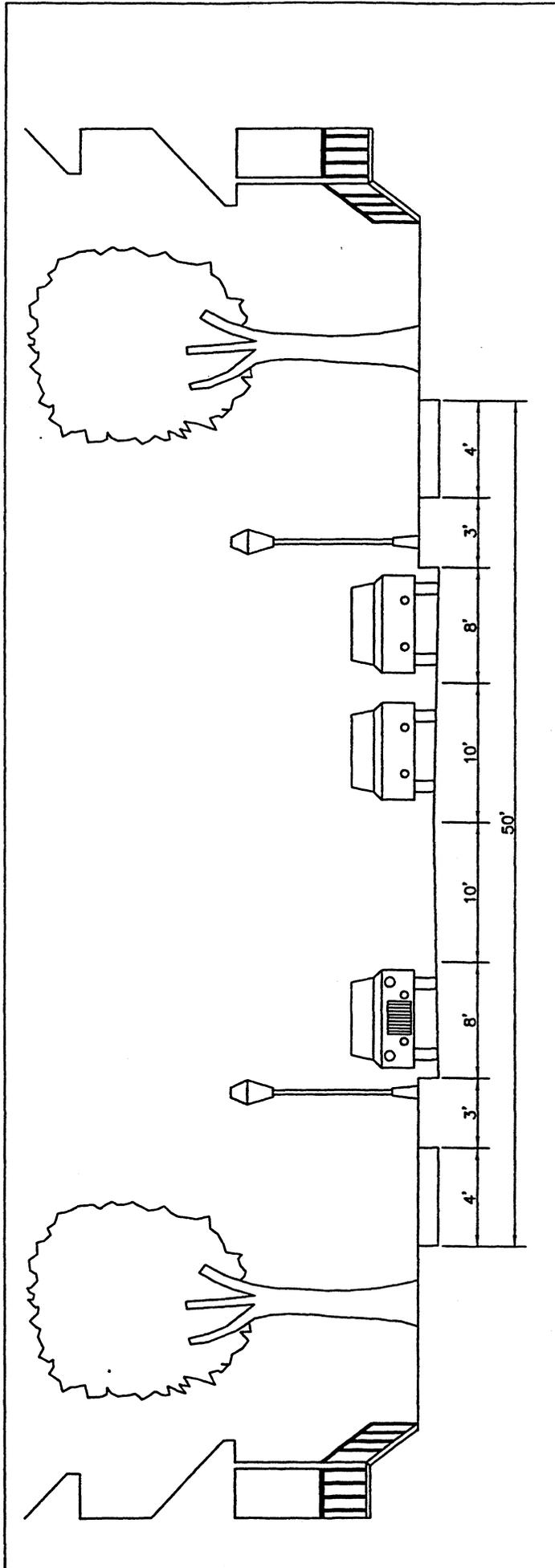
NOT TO SCALE

- NOTES:**
1. ALL AREAS ADJACENT TO CURBS, INLETS, MANHOLE COVERS ETC., ARE TO BE SEALED WITH AC-20 FOR A DISTANCE OF TWELVE (12) INCHES FROM THE CURB, ETC.
  2. THE TOWNSHIP OR THEIR AGENT SHALL INSPECT ALL WORK IN ACCORDANCE WITH THIS ORDINANCE.
  3. MATERIALS, EQUIPMENT AND METHODS SHALL CONFORM TO PennDOT PUBL. 408, CURRENT VERSION.
  4. VIBRATORY ROLLER REQUIRED FOR COMPACTION OF BITUMINOUS MATERIAL.
  5. STORM SEWER INLETS SHALL BE PennDOT TYPE-C IN ALL CURBED STREETS.

## STREET CONSTRUCTION MATERIALS

<b>RAPHO TOWNSHIP</b>	
	PROJECT NO: 336

SUBBASE (NO. 3A)	PAVED SURFACE
10"	4" ID-2 BINDER COURSE 11, 2 WE. COURSE



# STREET SECTION FOR LOCAL STREET

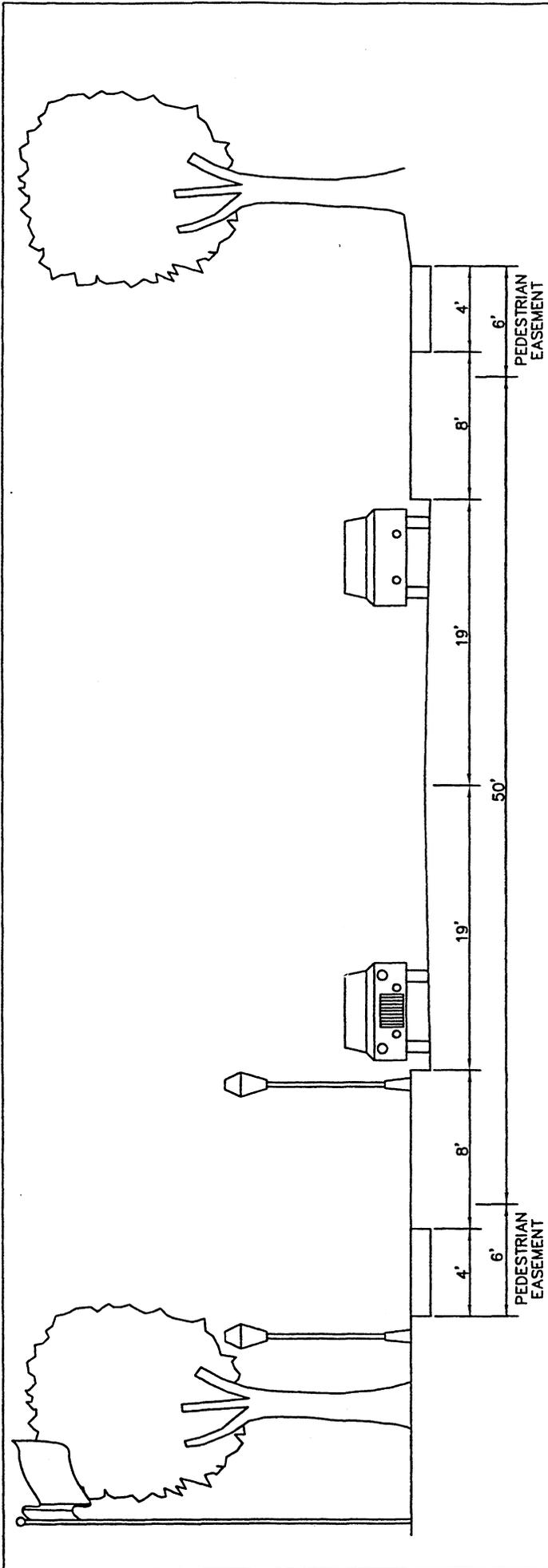
NOT TO SCALE

- NOTES:**
1. ALL AREAS ADJACENT TO CURBS, INLETS, MANHOLE COVERS ETC., ARE TO BE SEALED WITH AC-20 FOR A DISTANCE OF TWELVE (12) INCHES FROM THE CURB, ETC.
  2. THE TOWNSHIP OR THEIR AGENT SHALL INSPECT ALL WORK IN ACCORDANCE WITH THIS ORDINANCE.
  3. MATERIALS, EQUIPMENT AND METHODS SHALL CONFORM TO PennDOT PUBL. 408, CURRENT VERSION.
  4. VIBRATORY ROLLER REQUIRED FOR COMPACTION OF BITUMINOUS MATERIAL.
  5. STORM SEWER INLETS SHALL BE PennDOT TYPE-C IN ALL CURBED STREETS.

<b>RAPHO TOWNSHIP</b>	
	PROJ: # 99364002

## STREET CONSTRUCTION MATERIALS

SUBBASE (NO. 3A)	PAVED SURFACE
10"	4" ID-2 BINDER COURSE 1 1/2" ID-2 WEARING COURSE



# STREET SECTION FOR COLLECTOR STREET

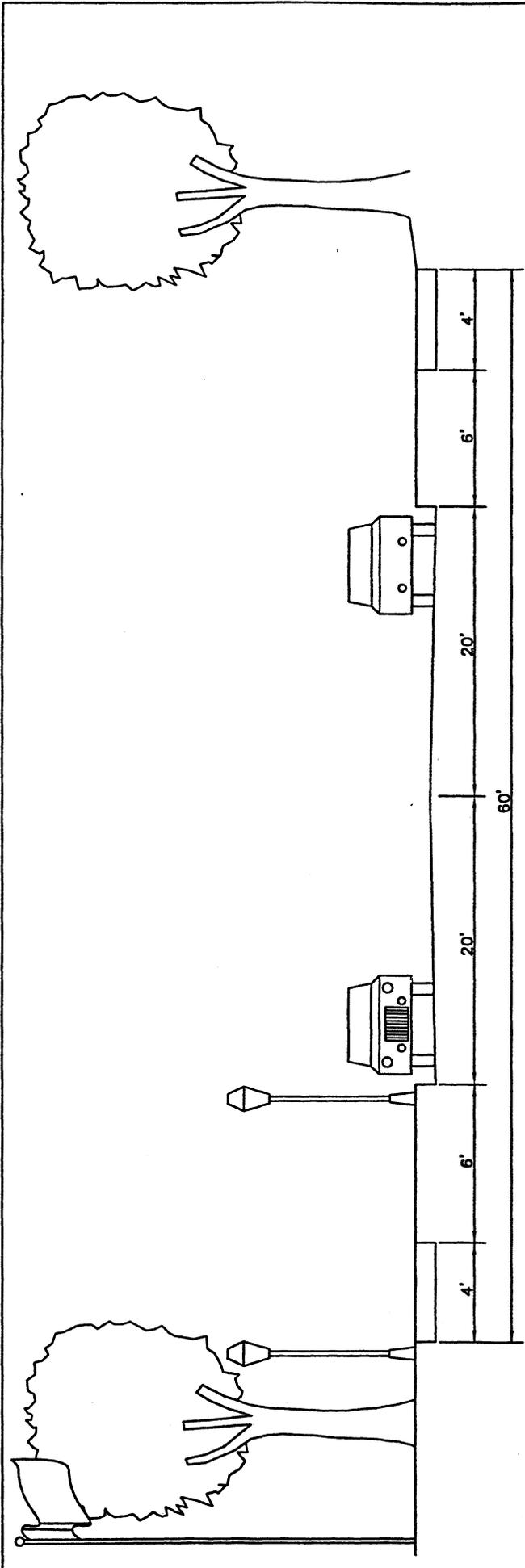
NOT TO SCALE

- NOTES:
1. ALL AREAS ADJACENT TO CURBS, INLETS, MANHOLE COVERS ETC., ARE TO BE SEALED WITH AC-20 FOR A DISTANCE OF TWELVE (12) INCHES FROM THE CURB, ETC.
  2. THE TOWNSHIP OR THEIR AGENT SHALL INSPECT ALL WORK IN ACCORDANCE WITH THIS ORDINANCE.
  3. MATERIALS, EQUIPMENT AND METHODS SHALL CONFORM TO PennDOT PUBL. 408, CURRENT VERSION.
  4. VIBRATORY ROLLER REQUIRED FOR COMPACTION OF BITUMINOUS MATERIAL.
  5. STORM SEWER INLETS SHALL BE PennDOT TYPE-C IN ALL CURBED STREETS.

RAPHO TOWNSHIP	
PROJECT: " 03361000 "	

### STREET CONSTRUCTION MATERIALS

SUBBASE (NO. 3A)	BASE COURSE	PAVED SURFACE
5"	4" BCR	3" ID-2 BINDER COURSE 1 1/2" WEAF CURSE



# STREET SECTION FOR ARTERIAL STREET

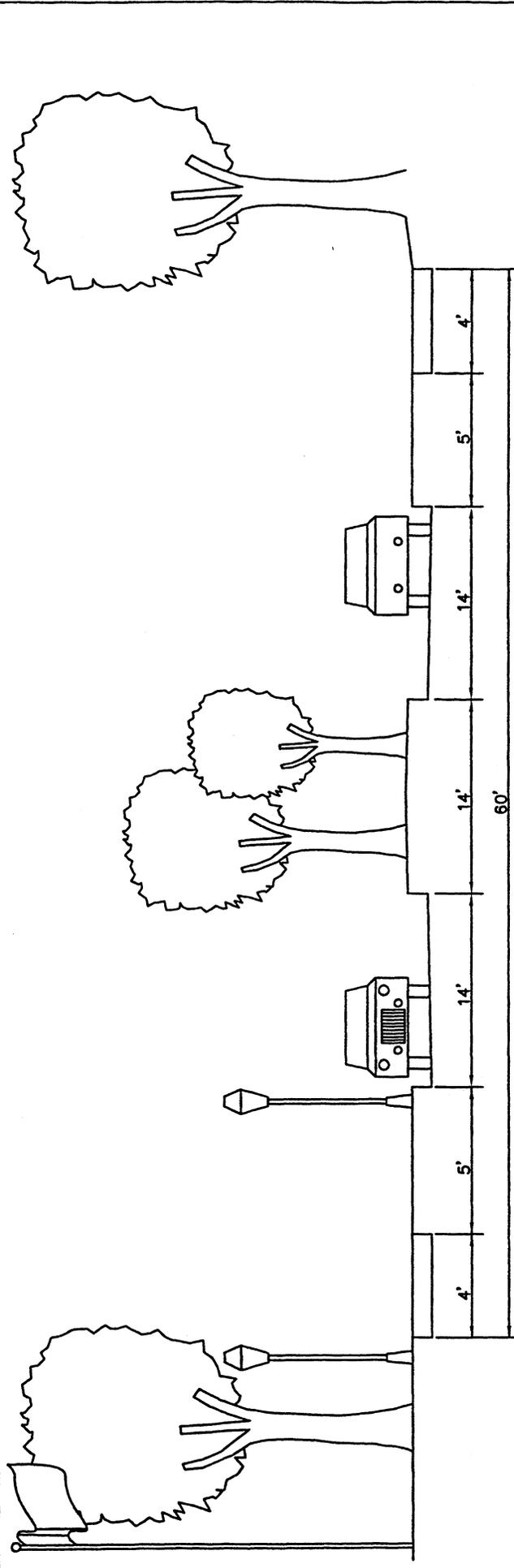
NOT TO SCALE

- NOTES:**
1. ALL AREAS ADJACENT TO CURBS, INLETS, MANHOLE COVERS ETC., ARE TO BE SEALED WITH AC-20 FOR A DISTANCE OF TWELVE (12) INCHES FROM THE CURB, ETC.
  2. THE TOWNSHIP OR THEIR AGENT SHALL INSPECT ALL WORK IN ACCORDANCE WITH THIS ORDINANCE.
  3. MATERIALS, EQUIPMENT AND METHODS SHALL CONFORM TO PennDOT PUBL. 408, CURRENT VERSION.
  4. VIBRATORY ROLLER REQUIRED FOR COMPACTION OF BITUMINOUS MATERIAL.
  5. STORM SEWER INLETS SHALL BE PennDOT TYPE-C IN ALL CURBED STREETS.

<b>RAPHO TOWNSHIP</b>	
	PROJ: # 99364002

## STREET CONSTRUCTION MATERIALS

SUBBASE (NO. 3A)	BASE COURSE	PAVED SURFACE
5"	4" BCBC	3" ID-2 BINDER COURSE 1 1/2" ID-2 WEARING COURSE



# STREET SECTION FOR BOULEVARD STREET

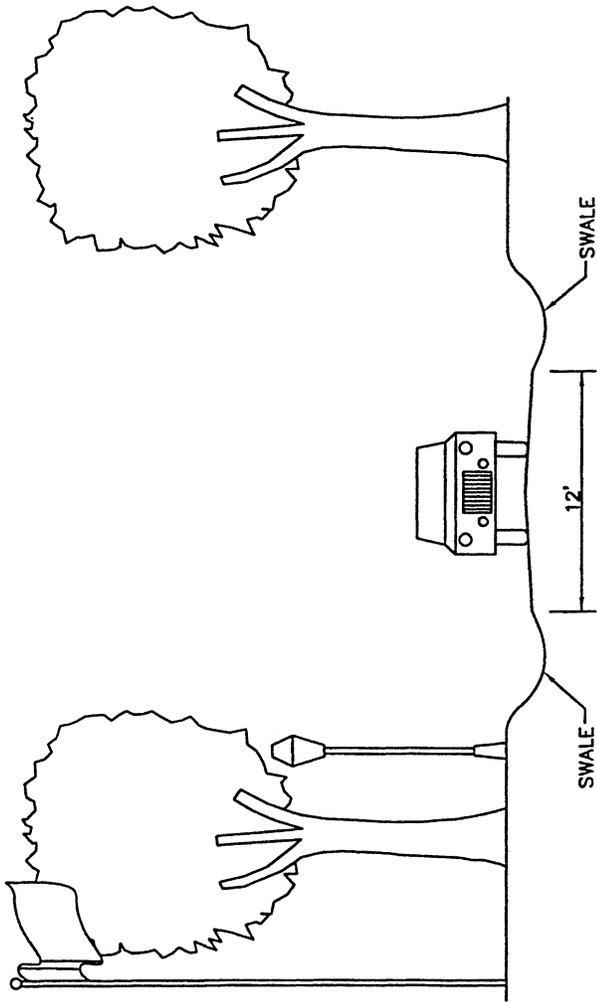
NOT TO SCALE

- NOTES:**
1. ALL AREAS ADJACENT TO CURBS, INLETS, MANHOLE COVERS ETC., ARE TO BE SEALED WITH AC-20 FOR A DISTANCE OF TWELVE (12) INCHES FROM THE CURB, ETC.
  2. THE TOWNSHIP OR THEIR AGENT SHALL INSPECT ALL WORK IN ACCORDANCE WITH THIS ORDINANCE.
  3. MATERIALS, EQUIPMENT AND METHODS SHALL CONFORM TO PennDOT PUBL. 408, CURRENT VERSION.
  4. VIBRATORY ROLLER REQUIRED FOR COMPACTION OF BITUMINOUS MATERIAL.
  5. STORM SEWER INLETS SHALL BE PennDOT TYPE-C IN ALL CURBED STREETS.

## STREET CONSTRUCTION MATERIALS

CLASSIFICATION	SUBBASE (NO. 3A)	BASE COURSE	PAVED SURFACE
LOCAL	10"	_____	4" 1D-2 BINDER COURSE 1 1/2" 1D-2 WEARING COURSE
ARTERIAL COLLECTOR	6"	1" BCC	3" 1D-2 BINDER COURSE 1 1/2" 1D-2 WEARING COURSE

<h3 style="margin: 0;">RAPHO TOWNSHIP</h3>	
	NJ: 336



STREET SECTION FOR ALLEY  
(SERVICE, OR MARGINAL ACCESS STREET)

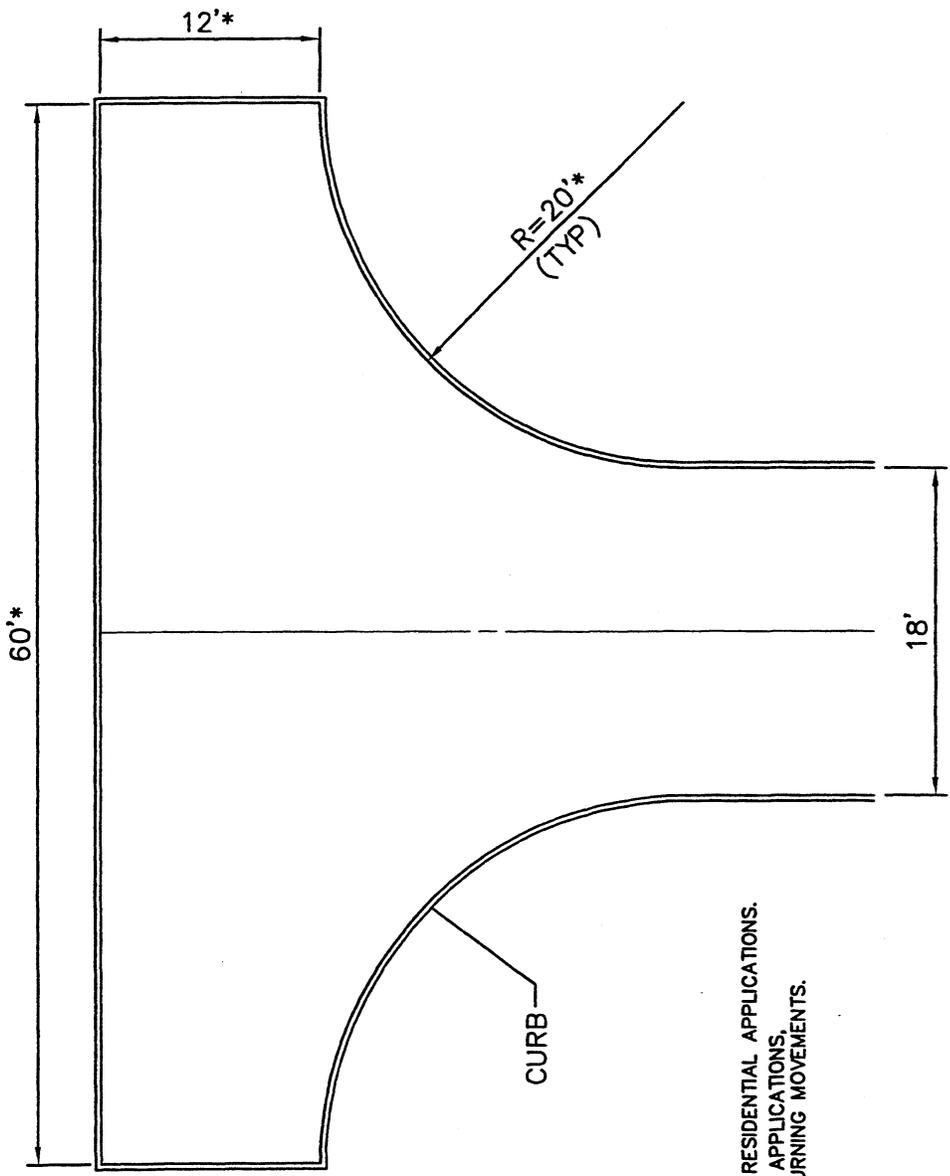
NOT TO SCALE

- NOTES:
1. ALL AREAS ADJACENT TO CURBS, INLETS, MANHOLE COVERS ETC., ARE TO BE SEALED WITH AC-20 FOR A DISTANCE OF TWELVE (12) INCHES FROM THE CURB, ETC.
  2. THE TOWNSHIP OR THEIR AGENT SHALL INSPECT ALL WORK IN ACCORDANCE WITH THIS ORDINANCE.
  3. MATERIALS, EQUIPMENT AND METHODS SHALL CONFORM TO PennDOT PUBL. 408, CURRENT VERSION.
  4. VIBRATORY ROLLER REQUIRED FOR COMPACTION OF BITUMINOUS MATERIAL.
  5. STORM SEWER INLETS SHALL BE PennDOT TYPE-C IN ALL CURBED STREETS.

<b>RAPHO TOWNSHIP</b>	
	PROJ: # 99364002

STREET CONSTRUCTION MATERIALS

SUBBASE (NO. 3A)	BASE COURSE	PAVED SURFACE
6"	_____	1 1/2" ID-2 BINDER COURSE 1 1/2" ID-2 WEARING COURSE

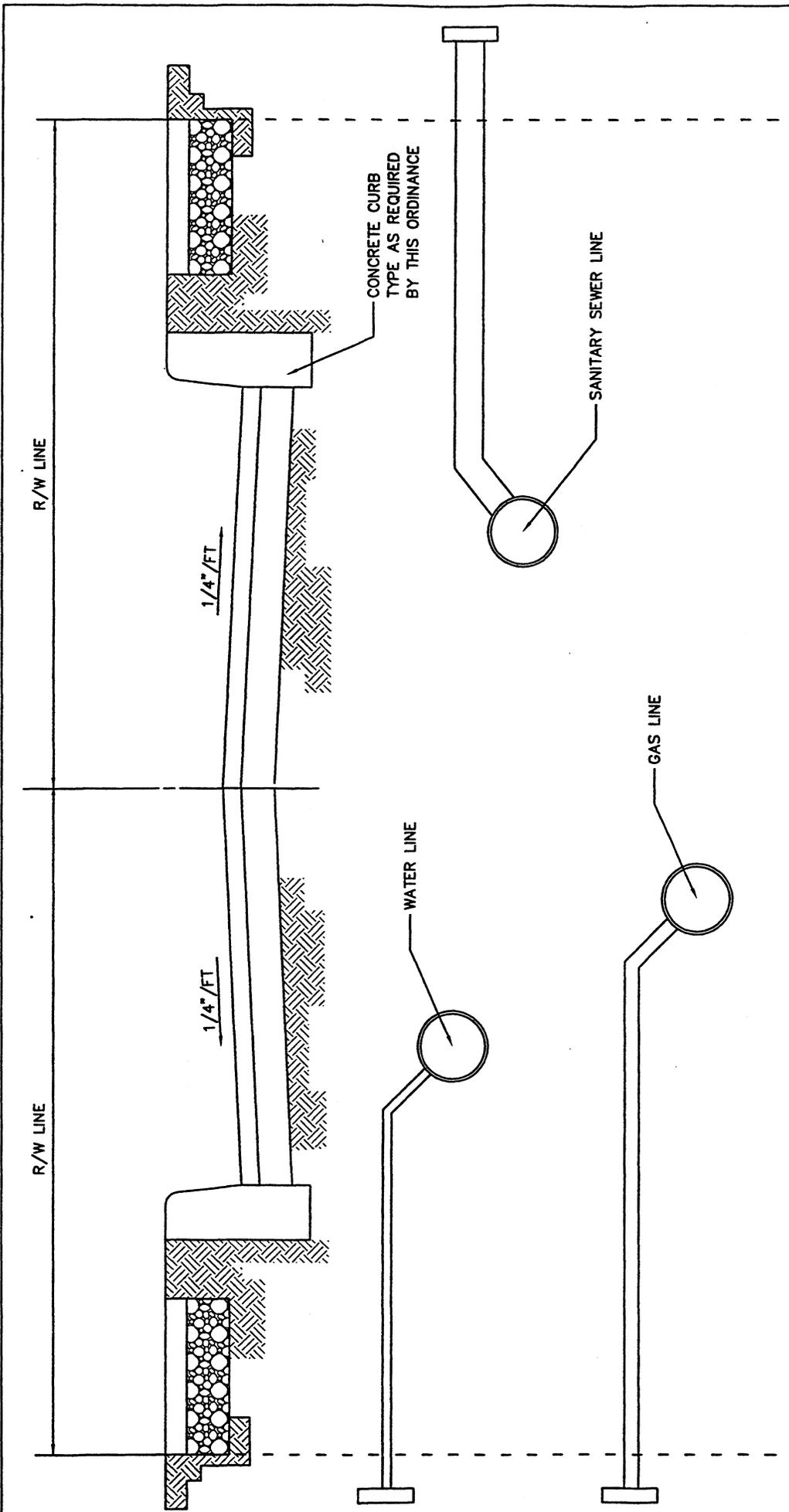


NOTES:  
 \* DIMENSIONS SHOWN ARE FOR RESIDENTIAL APPLICATIONS.  
 \* FOR INDUSTRIAL/COMMERCIAL APPLICATIONS,  
 DESIGN FOR WB-50 TRUCK TURNING MOVEMENTS.

"T" - SHAPED TURN-AROUND  
(FOR SPECIAL PURPOSE STREETS AND ALLEYS)

NOT TO SCALE

RAPHO TOWNSHIP	
	DATE: " 036 " 000?

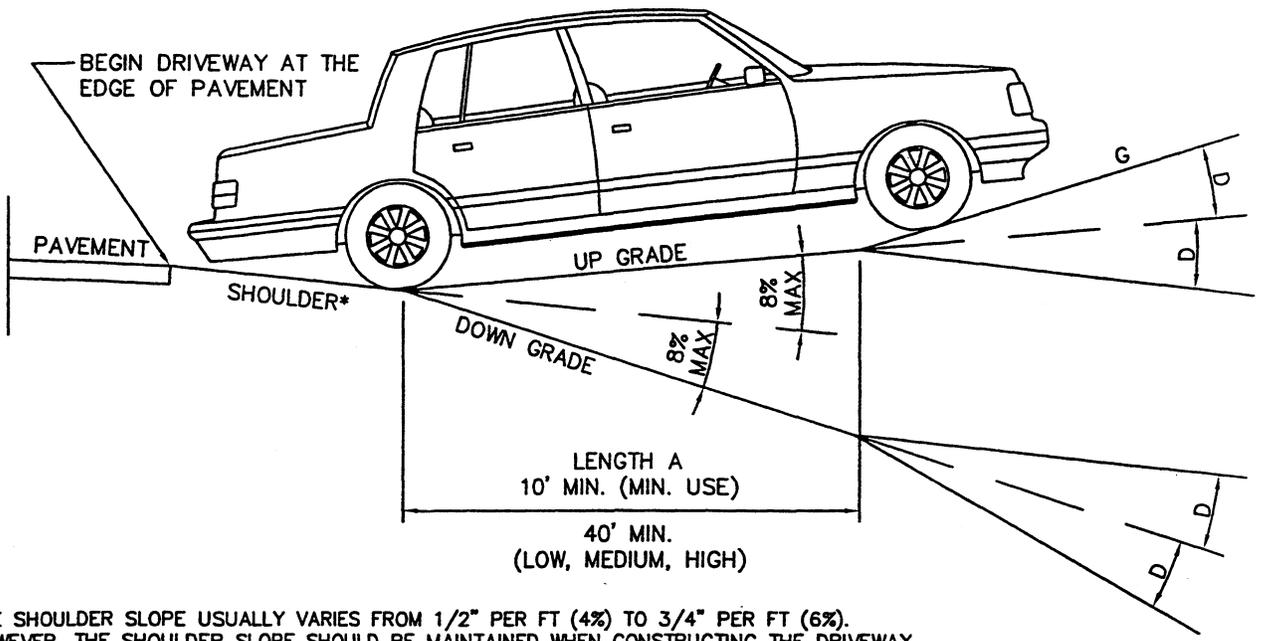
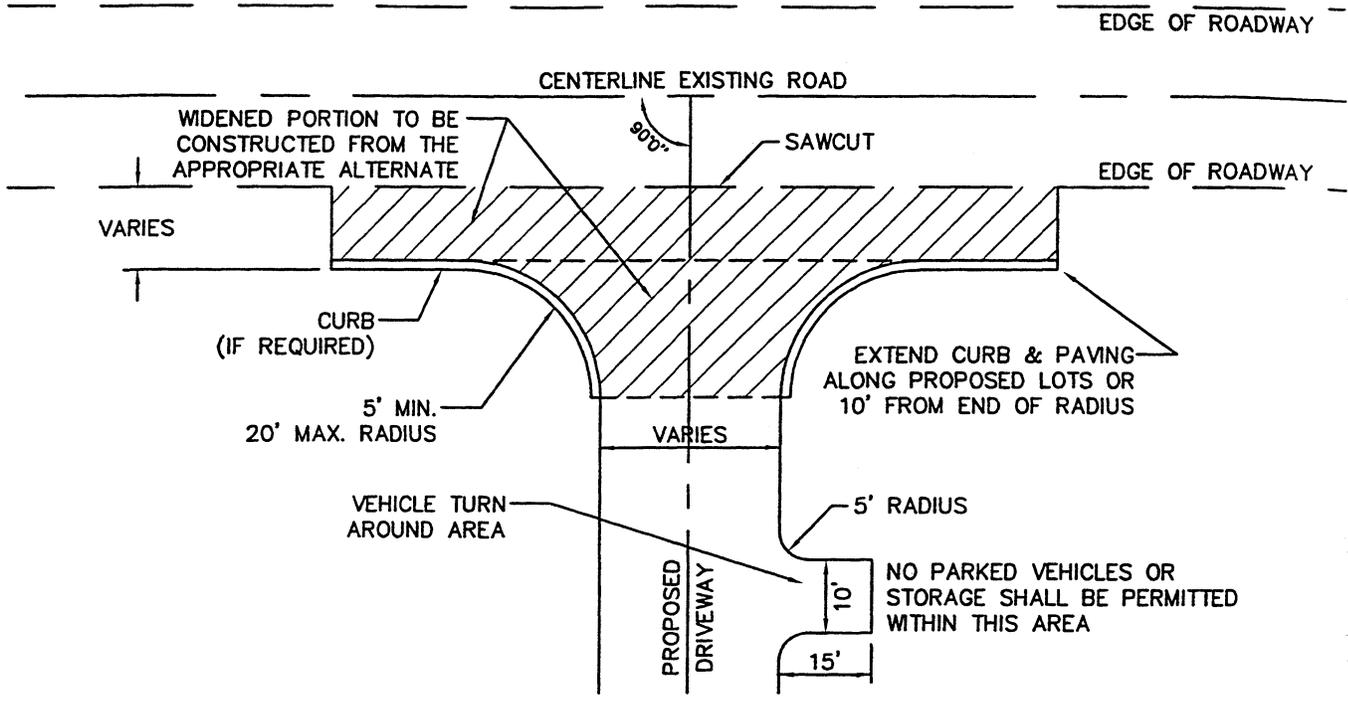


# TYPICAL UTILITY INSTALLATION

NOT TO SCALE

NOTES:  
1. ALL UTILITY LATERALS TO EXTEND BEYOND R/W.

RAPHO TOWNSHIP	



\*THE SHOULDER SLOPE USUALLY VARIES FROM 1/2" PER FT (4%) TO 3/4" PER FT (6%). HOWEVER, THE SHOULDER SLOPE SHOULD BE MAINTAINED WHEN CONSTRUCTING THE DRIVEWAY.

FOR GRADE CHANGES GREATER THAN THOSE SHOWN ABOVE, VERTICAL CURVES AT LEAST 10 FEET LONG SHALL BE CONSTRUCTED AND LENGTH "A" SHALL BE INCREASED.

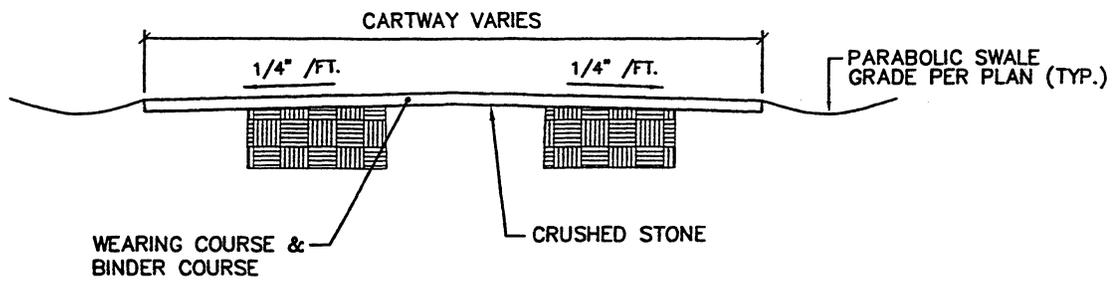
GRADES (G) SHALL BE LIMITED TO 15% FOR MINIMUM USE OF DRIVEWAYS AND FROM FIVE PERCENT TO EIGHT PERCENT FOR LOW, MEDIUM OR HIGH VOLUME DRIVEWAYS WITHIN THE RIGHT-OF-WAY.

TYPICAL DRIVEWAY  
 NOT TO SCALE

REV:

<h2 style="margin: 0;">RAPHO TOWNSHIP</h2>	
PROJ: # 99364002	

	MAXIMUM GRADE CHANGE (D)	
	DESIRABLE	MAXIMUM
HIGH VOLUME DRIVEWAY	0%	±3%
MEDIUM VOLUME DRIVEWAY	±3%	±6%
LOW VOLUME DRIVEWAY	±6%	CONTROLLED BY VEHICLE CLEARANCE



TYPICAL ACCESS DRIVEWAY  
CROSS SECTION

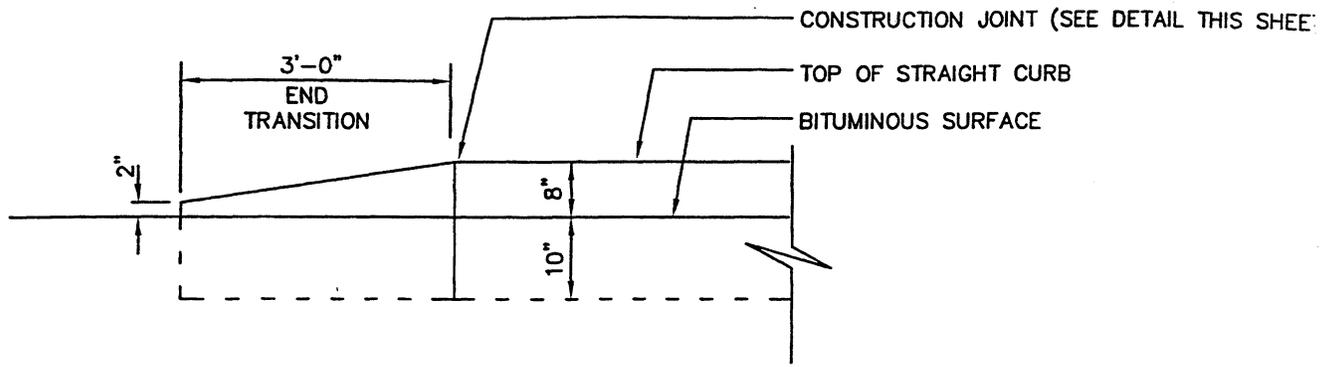


NOT TO SCALE

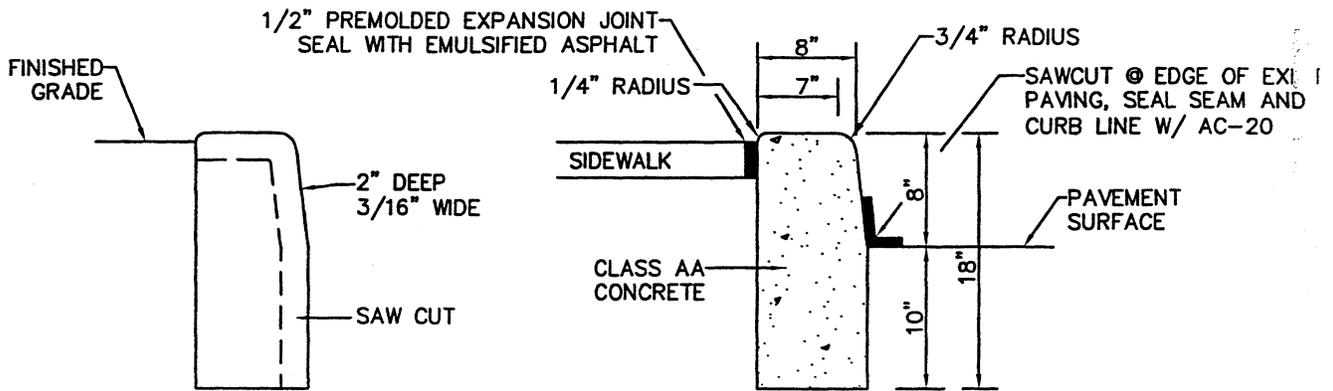
REV:

RAPHO TOWNSHIP

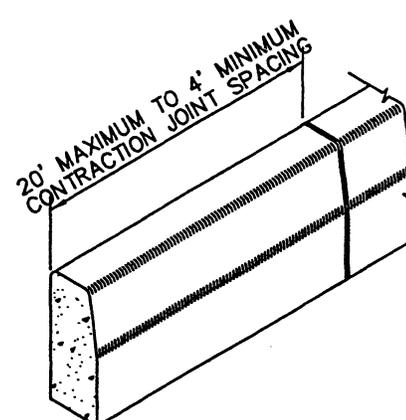
PROJ: # 99364002



○ TYPICAL CURB END  
NOT TO SCALE REV:



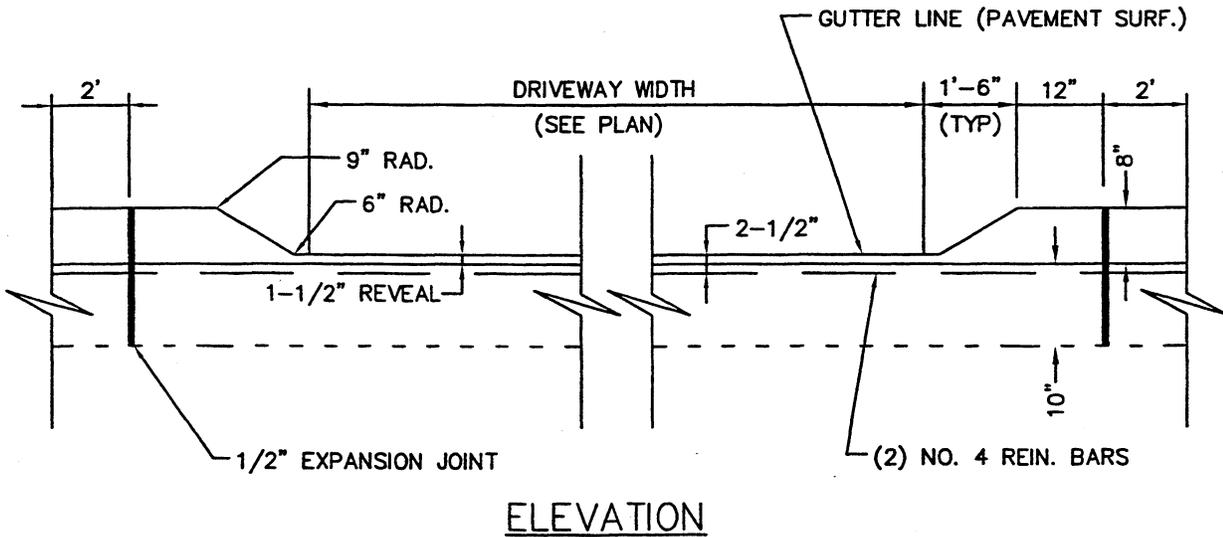
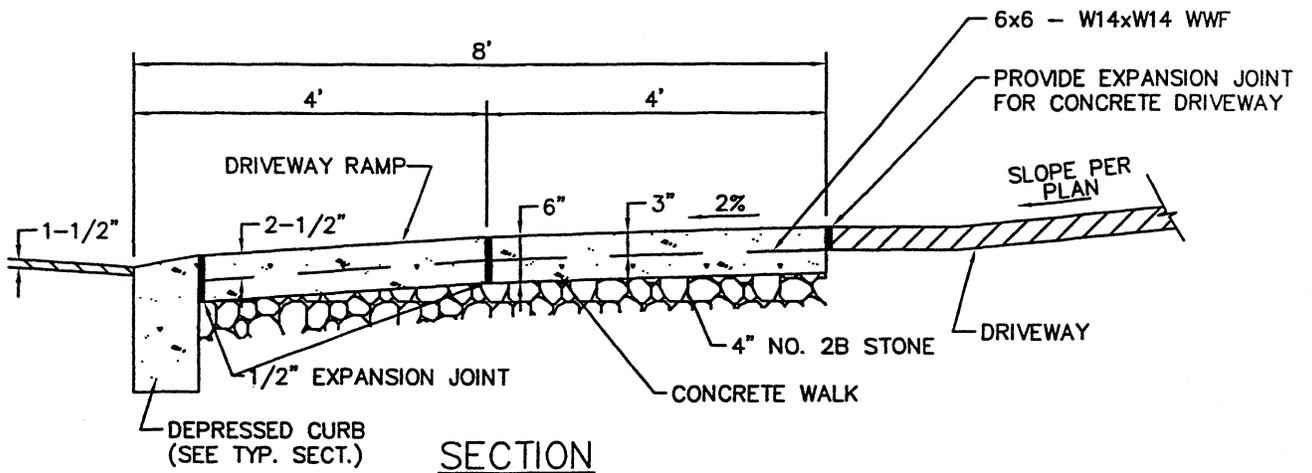
CONTRACTION JOINT TYPICAL CROSS SECTION



PLAIN CEMENT CONCRETE CURB

○ TYPICAL VERTICAL CURB DETAIL  
NOT TO SCALE REV:

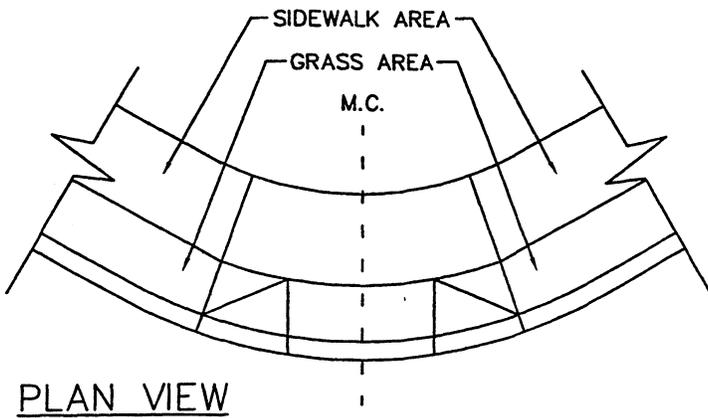
RAPHO TOWNSHIP	
	PROJ: # 99364002



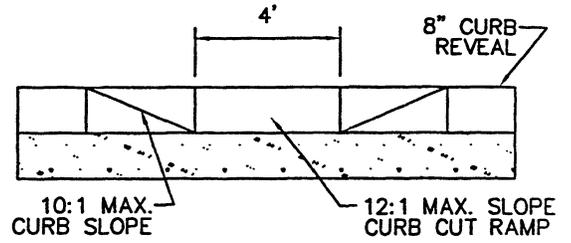
○ DEPRESSED CURB AT DRIVEWAY  
NOT TO SCALE

REV:

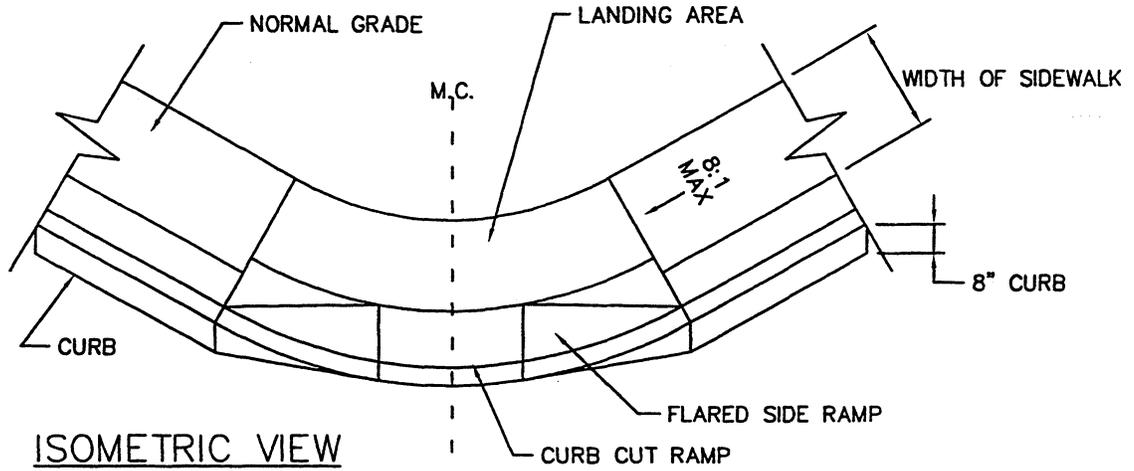
RAPHO TOWNSHIP	
	PROJ: # 99364002



PLAN VIEW

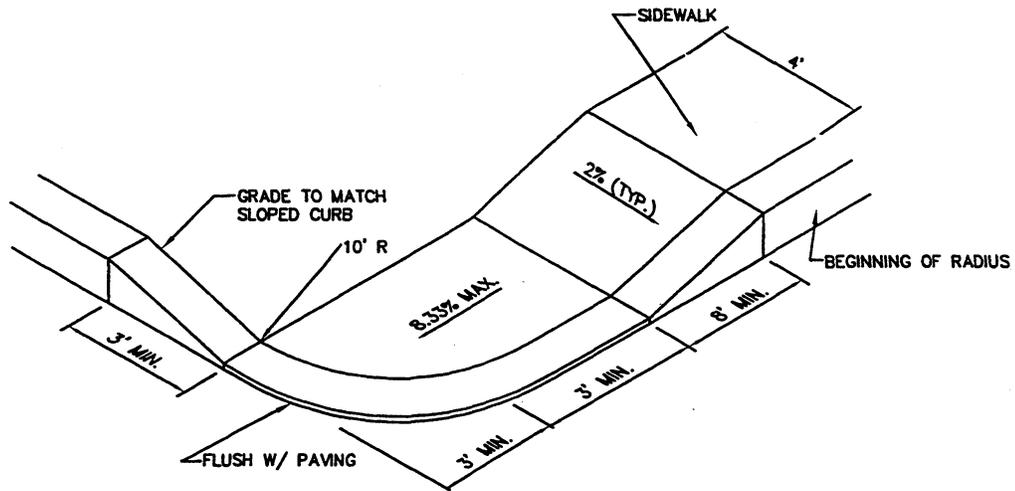


ELEVATION VIEW  
TYPE 2 SINGLE



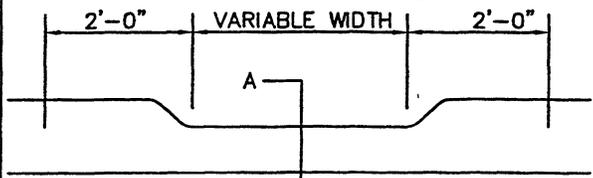
ISOMETRIC VIEW

○ TYPE 2 SINGLE CURB CUT RAMP  
NOT TO SCALE  
REV:

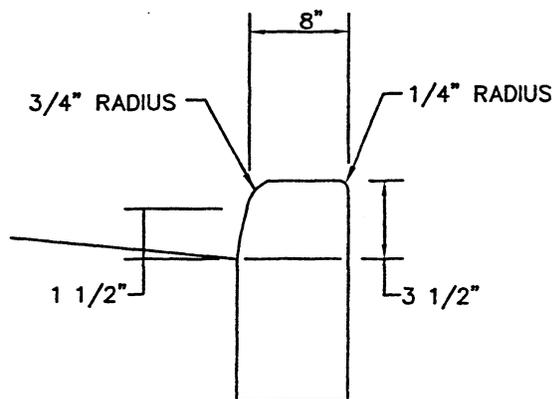


○ RAMP DETAIL  
NOT TO SCALE  
REV:

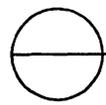
RAPHO TOWNSHIP	
	PROJ: # 99364002



DEPRESSED DRIVE AREA



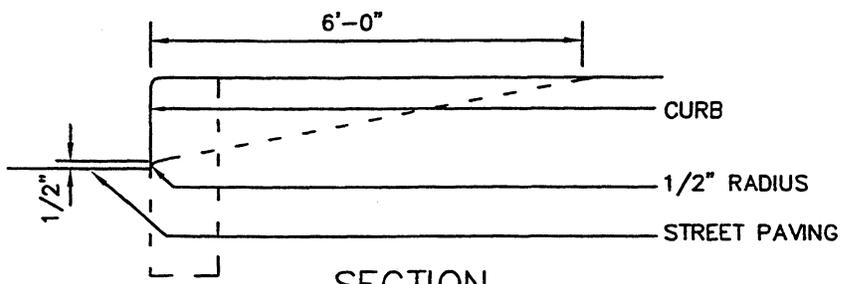
SECTION A-A



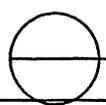
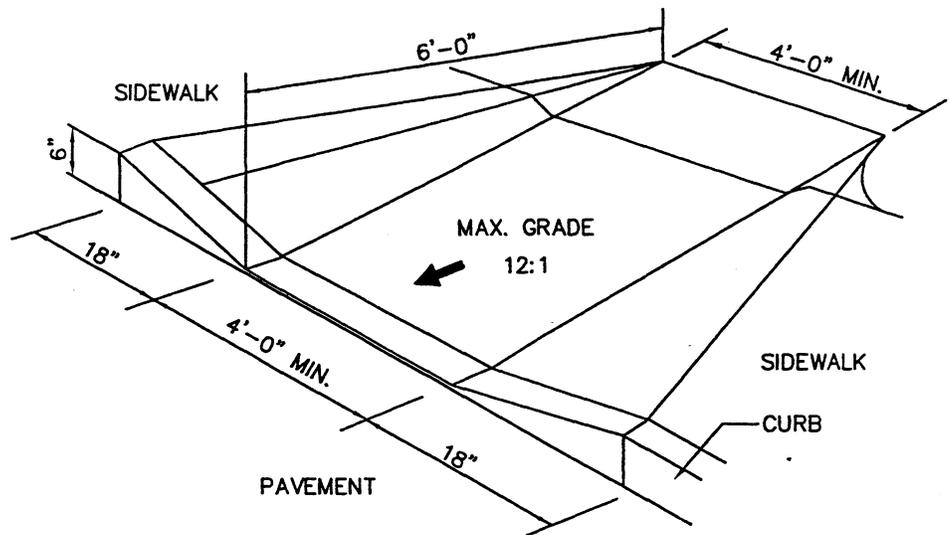
DEPRESSED CURB DETAIL

NOT TO SCALE

REV:



SECTION

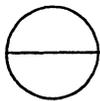
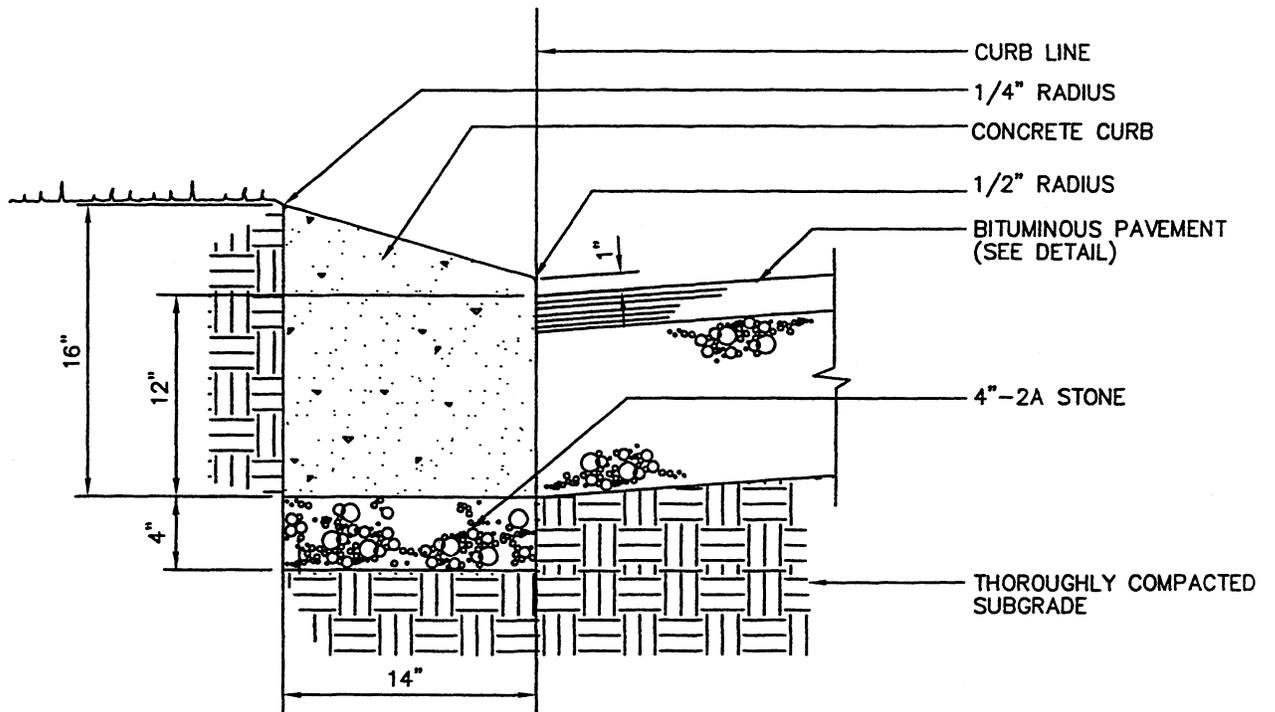


CURB CUT/RAMP DETAIL

NOT TO SCALE

CU/CU008  
REV: 8/1/97

RAPHO TOWNSHIP	
PROJ: # 99364002	

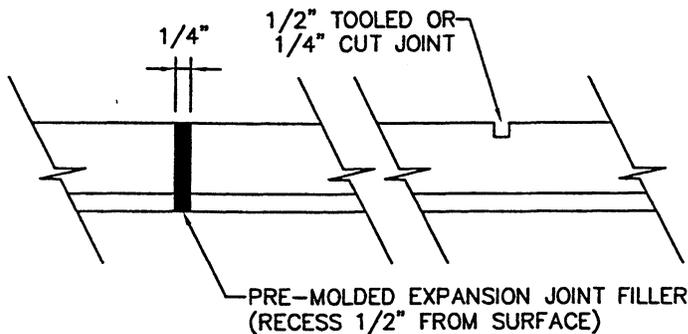


SLANT CURB DETAIL

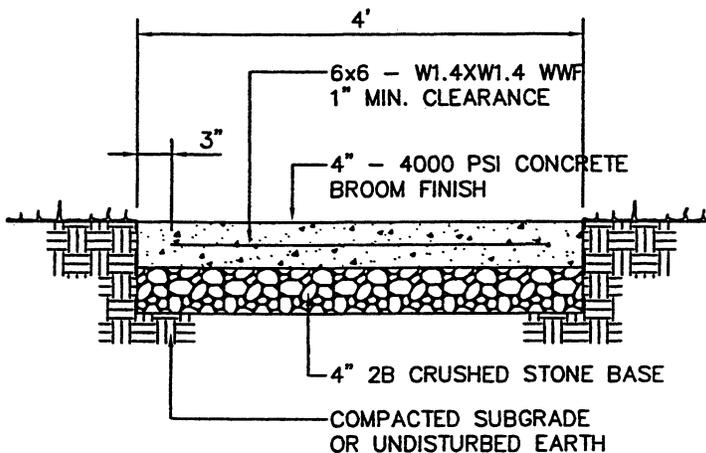
NOT TO SCALE

REV:

RAPHO TOWNSHIP	
	PROJ: # 99364002



TYPICAL EXPANSION & CONTRACTION JOINTS



NOTES:

1. EXPANSION JOINTS LOCATED AT 20' O.C.
2. TOOLED JOINTS LOCATED AT 5' O.C.
3. SIDEWALK IS TO BE LIGHT BROOM FINISHED IN DIRECTION OF SIDEWALK WIDTH.
4. ALL SIDEWALKS TO HAVE A 2% CROSS SLOPE.



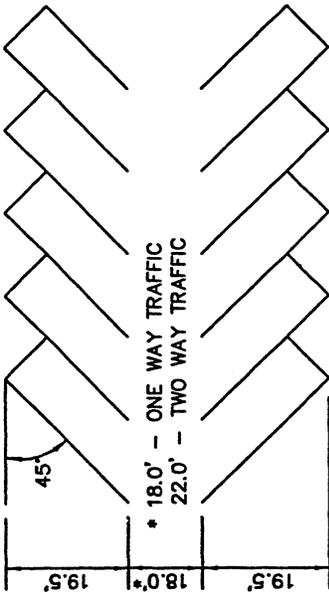
CONCRETE SIDEWALK DETAIL

NOT TO SCALE

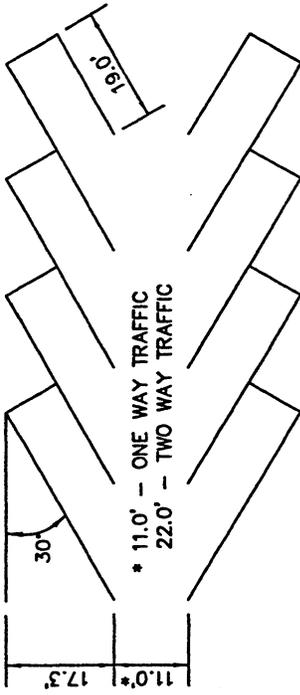
REV:

RAPHO TOWNSHIP	
	PROJ: # 99364002

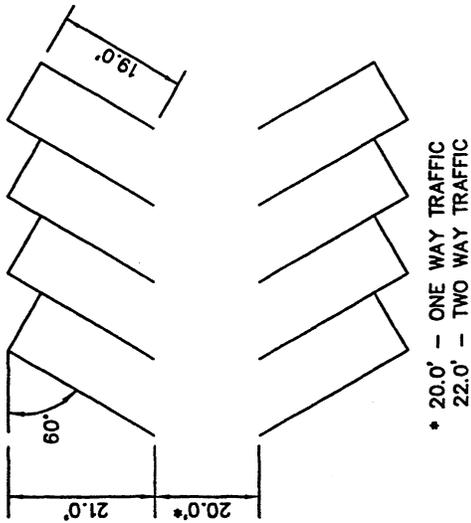
45° PARKING



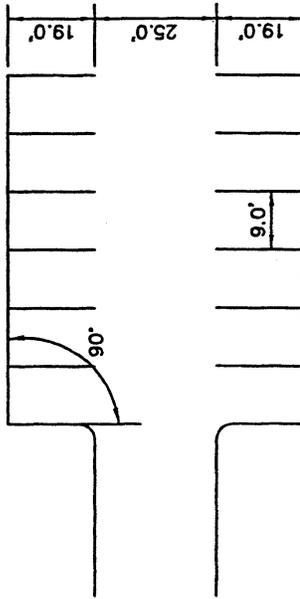
30° PARKING



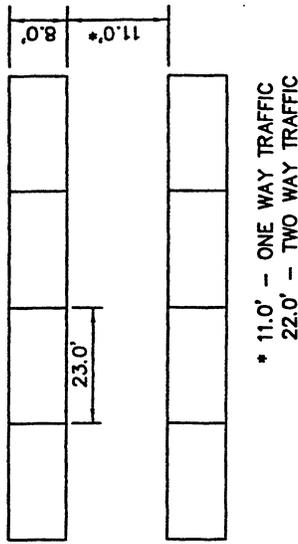
60° PARKING



90° PARKING



PARALLEL PARKING



PARKING SPACES

NOT TO SCALE

PARKING LOT MINIMUM CONSTRUCTION MATERIALS

ALT.	SUBBASE (NO. 2A)	BASE COURSE	PAVED SURFACE
A.		8" CABG	2" ID-2 BINDER COURSE 1 1/2" ID-2 WEARING COURSE
		ID-2 R COL	1" WEAR 1/2" IRSE

RAPHO TOWNSHIP

...J: π 936 ...2

**RAPHO TOWNSHIP ORDINANCE**  
**RAINFALL INTENSITY-DURATION-FREQUENCY CHART**  
LANCASTER COUNTY, PENNSYLVANIA

Storm Event --	2 yrs.	10 yrs.	25 yrs.	50 yrs.	100 yrs.
Time of Concentration (Minutes)	Rainfall Intensity (Inches/Hour)				
5	4.63	6.02	6.70	7.51	8.19
6	4.34	5.70	6.39	7.22	7.90
7	4.12	5.42	6.10	6.95	7.62
8	3.92	5.17	5.85	6.70	7.36
9	3.75	4.95	5.62	6.47	7.12
10	3.59	4.75	5.41	6.26	6.90
11	3.45	4.58	5.22	6.07	6.70
12	3.32	4.42	5.05	5.88	6.50
13	3.21	4.27	4.89	5.71	6.33
14	3.10	4.13	4.74	5.55	6.16
15	3.00	4.00	4.60	5.40	6.00
16	2.91	3.89	4.47	5.27	5.85
17	2.83	3.78	4.35	5.13	5.71
18	2.75	3.68	4.24	5.01	5.58
19	2.67	3.58	4.13	4.89	5.46
20	2.60	3.50	4.03	4.78	5.34
21	2.54	3.41	3.94	4.68	5.23
22	2.48	3.33	3.85	4.58	5.12
23	2.42	3.26	3.77	4.48	5.01
24	2.36	3.19	3.68	4.39	4.92
25	2.31	3.15	3.61	4.30	4.83
26	2.26	3.05	3.53	4.22	4.74
27	2.22	2.99	3.47	4.14	4.65
28	2.17	2.93	3.40	4.06	4.57
29	2.13	2.88	3.33	3.99	4.49
30	2.09	2.82	3.27	3.92	4.41
31	2.05	2.77	3.21	3.85	4.34
32	2.01	2.72	3.16	3.79	4.27
33	1.97	2.67	3.10	3.72	4.20
34	1.94	2.63	3.05	3.66	4.14
35	1.91	2.59	3.00	3.61	4.08
36	1.87	2.54	2.95	3.55	4.01
37	1.84	2.50	2.91	3.49	3.96
38	1.81	2.46	2.86	3.44	3.90
39	1.78	2.43	2.82	3.39	3.84
40	1.76	2.39	2.78	3.34	3.79
41	1.73	2.35	2.73	3.29	3.74
42	1.70	2.32	2.70	3.25	3.69
43	1.68	2.29	2.66	3.20	3.64
44	1.66	2.26	2.62	3.16	3.59
45	1.63	2.22	2.58	3.12	3.54
46	1.61	2.19	2.55	3.08	3.50
47	1.59	2.16	2.52	3.04	3.46
48	1.57	2.14	2.48	3.00	3.41
49	1.55	2.11	2.45	2.96	3.37
50	1.53	2.08	2.42	2.92	3.33
51	1.51	2.06	2.39	2.89	3.29
52	1.49	2.03	2.36	2.85	3.26
53	1.47	2.01	2.33	2.82	3.22
54	1.45	1.99	2.30	2.78	3.18
55	1.43	1.96	2.28	2.75	3.15
56	1.41	1.94	2.25	2.72	3.11
57	1.40	1.91	2.22	2.69	3.08
58	1.38	1.89	2.20	2.66	3.05
59	1.37	1.87	2.17	2.63	3.01
60	1.35	1.85	2.15	2.60	2.98

Source: Pennsylvania Department of Transportation, Rainfall Intensity-Duration Charts, developed by Penn State University, Department of Engineering, October 1986.



## RUNOFF COEFFICIENTS

("C" for use with Rational Formula)

Soil Group	A			B			C			D		
	Slope	0 - 2%	2 - 6%	6%+	0 - 2%	2 - 6%	6%+	0 - 2%	2 - 6%	6%+	0 - 2%	2 - 6%
Land Use												
<b>Cultivated Land</b>												
Winter conditions	0.14	0.23	0.34	0.21	0.32	0.41	0.27	0.37	0.48	0.34	0.45	0.56
Summer conditions	0.10	0.16	0.22	0.14	0.20	0.28	0.19	0.26	0.33	0.23	0.29	0.38
<b>Fallow Fields</b>												
Poor conditions	0.12	0.19	0.28	0.17	0.25	0.34	0.23	0.33	0.40	0.27	0.35	0.45
Good conditions	0.08	0.13	0.16	0.11	0.15	0.21	0.14	0.19	0.26	0.18	0.23	0.31
<b>Forest/Woodland</b>	0.08	0.11	0.14	0.10	0.14	0.18	0.12	0.16	0.20	0.15	0.20	0.25
<b>Grass Areas</b>												
Good conditions	0.10	0.16	0.20	0.14	0.19	0.26	0.18	0.22	0.30	0.21	0.25	0.35
Average conditions	0.12	0.18	0.22	0.16	0.21	0.28	0.20	0.25	0.34	0.24	0.29	0.41
Poor conditions	0.14	0.21	0.30	0.18	0.28	0.37	0.25	0.35	0.44	0.30	0.40	0.50
<b>Impervious Areas</b>	0.90	0.91	0.92	0.91	0.92	0.92	0.92	0.93	0.94	0.93	0.94	0.95
<b>Weighted Residential</b>												
Lot size 1/8 acre	0.29	0.33	0.36	0.31	0.35	0.40	0.34	0.38	0.44	0.36	0.41	0.48
Lot size 1/4 acre	0.26	0.30	0.34	0.29	0.33	0.38	0.32	0.36	0.42	0.34	0.38	0.46
Lot size 1/3 acre	0.24	0.28	0.31	0.26	0.32	0.35	0.29	0.35	0.40	0.32	0.36	0.43
Lot size 1/2 acre	0.21	0.25	0.28	0.24	0.27	0.32	0.27	0.31	0.37	0.30	0.34	0.43
Lot size 1 acre	0.18	0.23	0.26	0.21	0.24	0.30	0.24	0.29	0.36	0.28	0.32	0.41

**RUNOFF CURVE NUMBERS**

("CN" for use with SCS Method)

Soil Group	A			B			C			D		
	Slope	0 - 2%	2 - 6%	6%+	0 - 2%	2 - 6%	6%+	0 - 2%	2 - 6%	6%+	0 - 2%	2 - 6%
Land Use												
<b>Cultivated Land</b>												
Winter conditions	48	60	75	62	73	82	68	78	90	77	88	95
Summer conditions	35	51	58	48	55	65	57	65	73	64	69	79
<b>Fallow Fields</b>												
Poor conditions	45	54	65	56	63	73	64	74	81	69	77	87
Good conditions	30	44	48	43	48	55	48	54	63	56	60	68
<b>Forest/Woodland</b>												
	30	40	43	42	46	50	45	50	53	50	56	61
<b>Grass Areas</b>												
Good conditions	35	51	53	48	54	63	56	59	73	62	63	79
Average conditions	45	53	58	52	55	65	60	63	75	65	69	82
Poor conditions	48	55	67	56	67	77	66	74	85	73	81	90
<b>Impervious Areas</b>												
	96	97	98	96	97	98	96	97	98	96	97	98
<b>Weighted Residential</b>												
Lot size 1/8 acre	71	75	78	74	76	82	78	80	87	81	83	90
Lot size 1/4 acre	62	67	71	66	69	76	67	69	76	75	78	88
Lot size 1/3 acre	59	65	69	64	66	74	65	66	75	74	77	87
Lot size 1/2 acre	57	63	68	62	64	73	63	65	73	72	76	86
Lot size 1 acre	55	62	67	61	63	72	61	64	72	71	75	85

## Minimum Safe Sight Stopping Distance Chart

Posted Speed Limit (MPH)	Roadway Grade (Percent)																				
	0	1	-1	2	-2	3	-3	4	-4	5	-5	6	-6	7	-7	8	-8	9	-9	10	-10
5	21	21	21	21	21	21	21	21	22	21	22	21	22	21	22	21	22	21	22	20	23
10	48	48	48	47	49	47	49	47	50	46	50	46	51	46	51	46	52	45	53	45	53
15	80	79	81	79	82	78	83	77	84	77	85	76	86	75	88	75	89	74	91	74	93
20	118	117	119	115	121	114	123	113	125	112	127	111	129	110	131	109	134	108	137	107	140
25	161	159	164	157	166	155	169	153	172	151	175	150	179	148	182	147	187	145	191	144	196
30	210	207	214	204	217	201	221	198	226	196	230	194	235	191	241	189	247	187	253	185	260
35	265	260	269	256	274	252	280	249	286	245	292	242	299	239	306	236	314	233	323	231	333
40	325	319	331	314	337	309	345	304	352	299	360	295	369	291	379	287	389	284	401	280	414
45	390	383	398	376	406	370	415	364	425	358	435	353	447	348	459	343	472	338	487	334	503
50	462	453	471	444	481	436	492	429	504	422	517	415	531	409	546	403	563	397	581	392	600
55	538	527	550	517	562	508	576	499	590	490	605	482	622	475	641	467	660	461	682	454	706
60	621	608	634	596	649	584	665	573	682	563	701	554	721	545	742	536	766	528	792	521	821
65	708	693	725	679	742	666	760	653	781	641	802	630	826	620	851	609	879	600	910	591	943

Based on the following formula ---->  $SSSD = 1.47 \times V \times t + \frac{V^2}{30 \times (f \pm g)}$