CITY OF PORT COLBORNE

LOT GRADING & DRAINAGE POLICY

FIRST DRAFT: JUNE 1989

SECOND DRAFT: AUGUST 1989

THIRD DRAFT: SEPTEMBER 1989

APPROVED BY PUBLIC WORKS COMMITTEE: June 20th, 1990

APPROVED BY COUNCIL: June 25th, 1990

BYLAW #: 2464/80/90

DATE: June 25th, 1990

This Policy shall be in effect on the date of the bylaw attached hereto.

OBJECTIVES OF THE POLICY

^ To insure the establishment and certification of drainage schemes for newly developed lands by means of good drainage practices.

^ To establish a schedule whereby the Subdivider and Lot Owner are responsible for the construction of a drainage scheme after which the maintenance of the system becomes the Owner's responsibility.

^ To insure that good drainage practices are established for newly-severed lots and existing vacant lots scheduled for new construction.

^ To insure future maintenance of revisions to the system by means of the Building Permit process.

REQUIREMENTS UNDER THE POLICY

All subdivision agreements for development of new residential lands in the City of Port Colborne shall include the provisions contained within this policy. The policy with respect to lot grading applies to severances and existing properties scheduled for new development.

EXEMPTIONS UNDER THE POLICY

Land severances and redevelopment of existing lots greater than one (1) hectare (2.47 acres) scheduled for single-family development only shall be exempt from this policy.

1. Subdivision Grade Control Plan

(a) The Subdivider, through his Consulting Engineer, shall be responsible for the preparation of a Subdivision Grade Control Plan for the purpose of controlling the overall drainage pattern through the establishment of relative surface elevations in accordance with good drainage practices.

(b) At the time of execution of the Subdivision Agreement, the Subdivider shall convey to the City, at his expense and in a form satisfactory to the City Solicitor, easements for all rearyard catchbasins and leads. The easements will typically be centred on the lot line and will be a minimum of three (3) metres in width (width may vary).

(c) The subdivision Grade Control Plan will be reviewed and approved as part of the subdivision approval process prior to execution of the Subdivision Agreement.

2. Subdivider's Responsibility

In addition to the previously stated requirements, the Subdivider shall ensure that all offers to purchase lots within the subdivision include a statement outlining the responsibility of subsequent owners to adhere to the Lot Grading and Drainage Policy.

3. Revisions to Subdivision Grade Control Plan

(a) Prior to acceptance of the subdivision by the City, any requests for revisions to the Subdivision Grade Control Plan to accommodate proposed or as-constructed deviations from the plan, shall be made by the Subdivider, to the City, in writing.

(b) A revision will only be granted if deemed reasonable and it shall be reviewed by the Subdivider and then approved by the City Engineer.

4. Grading Requirements Prior to Building Permits

The following grading works shall be completed prior to the issuance of any building permits:

i) installation, to grade, of all rearyard catchbasins including connections to the main sewers.

ii) rough grading of all lots and blocks to generally conform to the Subdivision Grade Control Plan.

iii) construction and sodding of all drainage swales and other erosion control devises deemed necessary (subject to weather conditions).

5. Proposed Lot Grading Requirements

(a) Prior to the issuance of a Building Permit for each lot, the Owner of the lot shall submit to the City two (2) copies of a proposed Lot Grading Plan, on the form supplied by the City, or on an A1 sheet as specified. The plan shall conform to the applicable Subdivision Grade Control Plan, or in the case of a non-subdivision lot, to a drainage design approved by the City.

The proposed Lot Grading Plan shall be prepared by a professional engineer or an Ontario Land Surveyor.

(b) The plan must take into consideration, among other factors the suitability of the type of building proposed for a lot.

(c) Where a revision to the Subdivision Grade Control Plan is necessary to accommodate a proposed grading plan, which does not conform to the Subdivision Grade Control Plan, the Owner must submit a written request for a revision.

(d) Upon acceptance by the City that the proposed Lot Grading Plan conforms to this Policy, a copy will be returned to the applicant.

(e) The grading of the lot shall be considered to be completed when the building has been erected and the lands have been graded and sodded. Sodding shall be done within two months after occupancy of the building or by the next June 1st following occupancy, should occupancy take place in the winter months.

6. Lot Grading Deposit

(a) At the time of application for Building Permit, the lot Owner shall deposit with the City, as surety for carrying out the provisions of the lot grading plan, a refundable amount of $1000.00. The deposit shall be either cash, or a letter of credit in a form suitable to the City. The grading deposit shall be returned to the Owner upon issuance of the Grading Conformance Certificate.

(b) Should drainage problems arise which are as a result of non-compliance to the requirements of this policy, the City will give the Owner 14 days notice to correct the problems. Upon failure of the Owner to rectify the problems, the City will use the grading deposit to cover the costs of any remedial works deemed necessary. Any costs of these remedial works in excess of the amount of the grading deposit shall be the responsibility of the Owner.

7. As-Constructed Lot Grading Plan Requirements

(a) Upon completion of the lot grading, the Owner shall be required to submit to the City one copy of the Lot Grading Plan which shall indicate the finished elevation of the grade control points on the proposed Lot Grading Plan.

(b) The as-constructed Lot Grading Plan shall be prepared and certified by a professional engineer or an Ontario Land Surveyor.

(c) Once the as-constructed grading of a lot has been accepted by the City, the Lot Grading Plan shall be certified and dated, by the City, as a Grading Conformance Certificate.

(d) The date on the Grading Conformance Certificate shall mark the end of the City's and Owner's responsibility to establish the lot grading and the beginning of the Owner's responsibility to maintain the grading and drainage scheme.

8. Revisions to Grading After Issuance of a Grading Conformance Certificate

As stated previously in this policy, the maintenance of the grading after issuance of the Grading Conformance Certificate is the responsibility of the Owner. Therefore, any revisions to the grading and drainage scheme established on the lands developed under this policy will be subject to the following requirements:

(a) Prior to the issuance of a building permit for any works which necessitate excavation (garages, swimming pools, building additions, etc.), the Owner shall submit to the City a proposed Lot Grading Plan prepared by a professional engineer or an Ontario Land Surveyor, which indicates the proposed grading changes, if any.

(b) If changes are proposed to the grading which will affect the established drainage:

i) Submission of the proposed Lot Grading Plan shall be accompanied with a Lot Grading Deposit in the amount of $300.00.

ii) Upon completion of the works and grading including restoration (sodding or preparation of seeding) the Owner shall submit to the City an as-constructed Lot Grading Plan prepared by a professional engineer or an Ontario Land Surveyor, which indicates the finished grades in accordance with this Policy.

iii) Upon acceptance by the City that the grading conforms to the Subdivision Grade Control Plan, the as-built Lot Grading Plan shall be certified by the City as the revised Grading Conformance Certificate and the Lot Grading Deposit shall be returned to the Owner.

iv) Upon failure of the owner to rectify drainage problems which are as a result of non-compliance to the requirements of this policy, the City will use the Lot Grading Deposit to cover the cost of any remedial works deemed necessary by the City. Any costs of these remedial works in excess of the amount of the Lot Grading Deposits shall be the responsibility of the Owner.

9. Technical Requirements for Subdivision Grade Control Plans

Subdivision Grade Control Plans shall be prepared in conformance with this part, and with regard to the Design Guidelines set out in this policy.

The Subdivision Grade Control Plan shall be prepared at a scale of 1:500, be on a standard AI (596 mm x 841 mm) size sheet, and clearly illustrate the following:

i) Legend, north direction, name of subdivision, geodetic bench mark(s), date of preparation of plan and any subsequent revisions clearly identified in the revision column.

ii) Property boundaries and lot and block numbers or designations.

iii) Existing and proposed contours and elevations.

iv) Existing elevations and drainage from lands adjacent to the subdivision and if the drainage from these lands is towards the proposed subdivision, the existing information shall be obtained to the high point of this drainage or at least to the adjacent street.

v) Local of sewer manholes, hydrants, sidewalks, catchbasins and rearyard catchbasins.

vi) Proposed elevations at the centre line of the finished road and relative data showing distances and slopes between these elevations.

vii) Existing and proposed ground elevations at the corner of each lot or block with suitable intermediate elevations as required.

viii) Existing and proposed ground elevations at the house.

ix) Location, elevation, and longitudinal slopes at the invert of swales together with rearyard catchbasin elevations and drainage arrows showing the direction of swale drainage.

x) The lot grading type of each lot or block with arrows to indicate the direction of surface drainage (see Plate 1 as an example).

xi) Any drainage obstruction such as berms, retaining walls, sound barriers, silt traps, vegetation, etc.

xii) Artificial or natural impoundments.

xiii) Existing trees and vegetation as they affect proposed drainage and catchbasin schemes and which are to be saved.

xiv) If any lots or blocks are not suitable for the construction of certain types of buildings or features (ie. split-levels, walkout basements, etc.) because of the grading and drainage pattern, this should be clearly indicated on the plan.

10. Technical Requirements for Lot Grading Plan

Lot Grading Plans for individual lots shall be prepared in conformance with this part, and with regard to the Design Guidelines set out in this Policy.

1. The Plan shall be at a scale of 1:200.

2. The Lot Grading Plan shall be on an L.G.-1 or L.G.-2 sheet issued by the City, or a standard A1 size sheet, if required.

3. The Plan shall include the identification and certification information shown on the enclosed sketch.

4. The Plan shall clearly illustrate the following:

a) General Information

i) shape and dimensions of lot.
ii) house location and shape (type).
iii) abutting street name(s).
iv) existing or proposed curbs, catchbasins, sidewalks, utility

v) proposed walkways, patios, decks, porches, chimneys, environmental control units (air-conditioners, heat pumps, etc.) swimming pools, etc.
vi) existing trees to be saved.
vii) location of proposed entrances, outside stairwells and window-wells.
viii) location of easements for rearyard catchbasins and leads or other utilities.

b) Drainage and Grading Information

i) specific lot grading with drainage arrows to indicate direction of surface drainage flow.
ii) location and direction of flow of swales.
iii) existing or proposed geodetic ground elevations at each corner of the lot, at high and low points, at changes in slope of ground, where a change in the direction of flow occurs, at the corners of the house, and at entrances to outside stairwells.
iv) existing or proposed elevation of the centre line of road, sidewalk or top of ditch abutting the subject lands.
v) elevations of top of footing, top of the foundation wall, and ground floor.
vi) elevation for finished garage floor and entrance elevations if different from floor elevations.
vii) elevation of rim of any rearyard or on site catchbasin(s) to which flow from the lot is directed.
viii) ground elevations on adjacent lands if drainage is to cross these lands to w catchbasin or other outlet on these lands.
ix) location of downspouts and direction of discharge. (NOTE: No downspouts shall be directed so as adversely affect adjacent property).
x) location of terraces and retaining walls.
xi) any slope which exceeds three horizontal to one vertical, including side slopes of swales.
xii) elevation of top step of outside stairwells (to be minimum of 150 mm above the adjacent ground).

11. Design Guidelines for Subdivision Lot Grading

The following guidelines should be considered when designing the grading on lots. Many of the guidelines set out are illustrated in the sample drawings in the appendix.

a) All surface drainage, including downspout discharge, shall be directed away from the building(s), including adjacent existing or future buildings.

b) Unless otherwise stipulated, the lot shall have a minimum slope of 1.5% and a maximum slope of 6%. Average slopes between 6% and 10% can be achieved by combining a 6% maximum slope with a 3 to 1 slope at the rear of the lot/block.

c) Should the average slope exceed 10%, the City Engineer may require a retaining structure to reduce the grade differential to an acceptable amount. Notwithstanding the above, elevation changes exceeding one metre in height shall require a retaining structure.

d) The maximum slope between the dwelling unit and the side property line shall be 3 to 1. Otherwise, appropriate steps or retaining structures shall be required.

e) Terraces between lots shall be located on the lower lot with the top of the terrace slope at the lot line.

f) Drainage flows shall be confined to defined swales which shall be located as far from the dwelling units as possible.

g) Swales shall have a desirable minimum grade of 2%, an absolute minimum of 1.0% and a maximum grade of 6%.

h) The swale depth shall not be less than 150mm and shall not exceed 600 mm. A desirable swale depth shall be 200 mm.

i) The side slope of swales shall not be steeper than 3 to 1.

j) The alignment of swales shall not change more than 45 degrees unless otherwise approved.

k) Rearyard swales shall be located:

   i) Centered on the rear lot line if adjoining lots are within the same subdivision.

   ii) Entirely on the subject lot if the adjoining land is outside the subdivision.

l) The maximum length of a rearyard swale from the high point to the outlet (rearyard catchbasin or other suitable outlet) shall be 70 metres unless otherwise approved. This maximum length of swale may be varied at the discretion of the City Engineer depending on lot size, topography, and drainage area.

m) The maximum flow allowed in a sideyard Swale shall be that from two backyards. If backyards are of an unusually large size, the City Engineer may

n) Generally speaking, all semi-detached and minimum sized lots shall have rear lot drainage schemes. Sideyard swales shall only be permitted with approval of City Engineer if the construction of such swales could be accommodated properly.

o) The minimum grade on driveways shall be 1.5%. The desirable maximum grade on driveways shall be 8% with an absolute maximum grade of 10%.

p) Depressed driveways sloping toward the dwelling units are generally discouraged and require special approval and storm sewer design considerations as specified in the Subdivision Agreement.

q) Side and back entrances and stairwells shall not be located adjacent to main swales or downspouts.

r) Window-wells should preferably be avoided but where they are required, special care shall be taken to insure that surface water from overland flow and from other sources such as downspouts shall not enter these wells. The edge of the window-well shall be higher than the adjacent ground.

s) Downspouts must discharge via splash pads (concrete or other suitable material) to grass surfaces. These splash pads shall extend a distance at least 1 metre away from the building.

t) Downspouts must direct the flow away from the building, not onto walks or driveways and not towards adjacent property.

CITY OF PORT COLBORNE

LOT GRADING PLAN SPECIFICATIONS

A. LOT GRADING REQUIREMENTS

1. Prior to the issuance of a Building Permit for each lot, Owner shall submit to the City two (2) copies of a proposed Lot Grading Plan, on the form supplied by the City, which conforms to the Subdivision Drainage Plan.

2. The plan must take into consideration, among other factors, the suitability of the type of building proposed for a lot.

3. Where a revision to the Subdivision Drainage Plan is necessary to accommodate a proposed grading plan, which does not conform to the Subdivision Drainage Plan, the owner must submit a written request for a revision.

4. Upon acceptance by the City that the proposed Lot Grading Plan conforms to this policy, a copy will be returned to the applicant.

5. The grading of the lot shall be considered to be completed when the building has been erected and the lands have been graded and sodded. Sodding shall be done within two months after occupancy of the building or by the next June 1st following occupancy, should occupancy take place in the winter months.

B. AS-CONSTRUCTED LOT GRADING PLAN

1. Upon completion of the grading, the owner shall be required to submit to the City one copy of the Lot Grading Plan which shall indicate the finished elevation of the grade control points on the proposed Lot Grading Plan.

2. The as-constructed Lot Grading Plan shall be prepared and certified by a professional engineer or an Ontario Land Surveyor.

3. Once the as-constructed grading of a lot has been accepted by the City, the Lot Grading Plan shall be certified and dated, by the City, as a Grading Conformance Certificate.

4. The date on the Grading Conformance Certificate shall mark the end of the City's and Owner's responsibility to establish the lot grading and the beginning of the Owner's responsibility to maintain the grading and drainage scheme.

TECHNICAL REQUIREMENTS FOR LOT GRADING PLANS

1. The Plan shall be at a scale of 1:200 or British system equivalent.

2. The Lot Grading Plan shall be on a legal-size sheet, or a standard AI size sheet if required.

3. The plan shall include the identification and certification information shown on the City's Standard Form for Lot Grading.

4. The Plan shall clearly illustrate the following:

(a) General Information

i) Shape and dimensions of lot.
ii) House location and shape (type).
iii) Abutting street name(s).
iv) Existing or proposed curbs, catchbasins, sidewalks, utility plant, hydrants, driveway locations(s) within the municipal road allowance.
v) Proposed walkways, patios, decks, porches, chimneys, environmental control units (air-conditioners, heat pumps, etc.), swimming pools, etc.
vi) Existing trees to be saved.
vii) Location of proposed entrances, outside stairwells and window wells.
viii) Location of easements for rearyard catchbasins and leads or other utilities.

(b) Drainage and Grading Information

i) Specific lot grading with drainage arrows to indicate direction of surface drainage flow.
ii) Location and direction of flow of swales.
iii) Existing or proposed geodetic ground elevations at each corner of the lot, at high and low points, at changes in slope of ground, where a change in the direction of flow occurs, at the corners of the house, and at entrances to outside stairwells.
iv) Existing or proposed elevation of the center line of road, sidewalk or top of ditch abutting the subject lands.
v) Elevation for finished garage floor and entrance elevations if different from floor elevations.
vi) Elevation of rim of any rearyard or on site catchbasin(s) to which flow from the lot is directed.
vii) Ground elevations on adjacent lands if drainage is to cross these lands to a catchbasin or other outlet on these lands.
viii) Location of downspouts and direction of discharge. (NOTE: No downspouts shall be directed so as adversely affect adjacent property).
ix) Location of terraces and retaining walls.
x) Any slope which exceeds three horizontal to one vertical, including side slopes of swales.
xi) Elevation of top step of outside stairwells (to be a minimum of 150mm above the adjacent ground).

CITY OF PORT COLBORNE - Lot Grading Plan

LOT No. _____ REG'D. PLAN No. _____

STREET & No. _____

BUILDER _____ PHONE _____

OWNER _____ PHONE _____

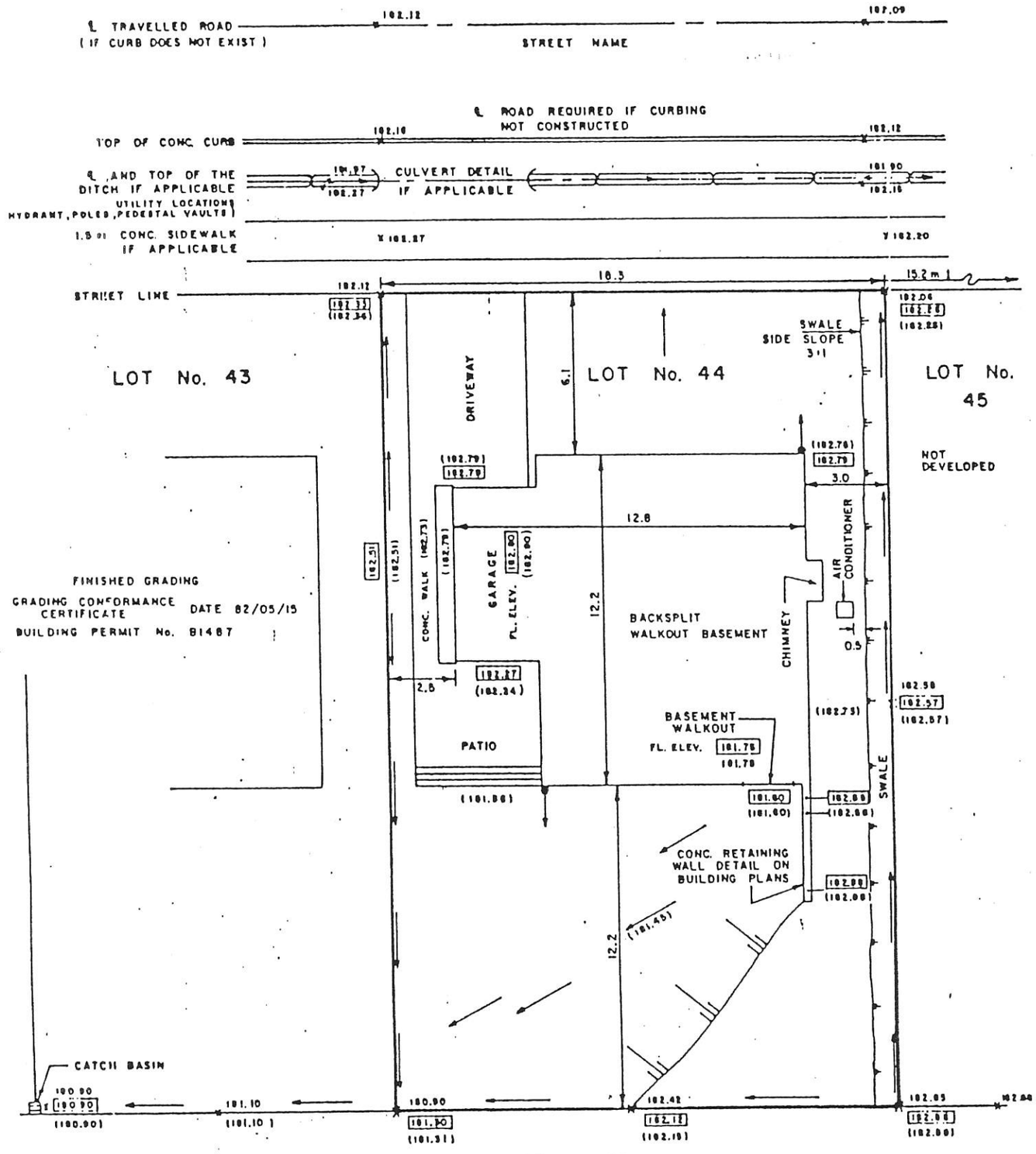
SUBD'N. DRAINAGE PLAN No. _____ REV'N. DATE _____

BENCHMARK (loc'n. & elev.) _____

Legend SCALE 1:200

- Drainage Direction
- Setback Measurement
- Downspout & Direction of Discharge
- 173.3 Existing Ground Elev.
- [173.3] Proposed Ground Elev.
- (173.3) Finished Ground Elev.

INDICATE NORTH



Proposed Grading Certification

I HEREBY CERTIFY THAT THE PROPOSED GRADING SHOWN CONFORMS TO THE LATEST REVISION OF THE SUBDIVISION DRAINAGE PLAN FOR THIS SUBDIVISION

NAME _____ FIRM _____

SIGNATURE _____ DATE _____

As Constructed Grading Certification

I HEREBY CERTIFY THAT I HAVE TAKEN THE FINISHED GRADES SHOWN, AND THAT THE GRADING OF THIS LOT GENERALLY CONFORMS TO THE LATEST REVISION OF THE SUBDIVISION DRAINAGE PLAN FOR THIS SUBDIVISION.

NAME _____ FIRM _____

SIGNATURE _____ DATE _____

ACCEPTED BY CITY _____ DATE _____