Specifications for Concrete Work in the Public Right of Way

3930 N. Murray Avenue Shorewood, WI 53211
Ph: 414-847-2640 Fax: 414-847-2648

Below is a guide to replacing concrete in the public right of way within the village. This often includes sidewalks and driveway approaches. If you are unsure or have questions about a proposed concrete project in the public right of way please call the Planning and Development office at (414) 847-2640.

***Call Digger's Hotline at (414) 259-1181 at least three days prior to digging.**

General Conditions

Walks

- Walks shall be constructed of monolithic concrete 6' wide x 5" deep, unless otherwise specified
- Walks in driveway areas shall be 7" deep

Driveway Approaches

- Approaches shall be constructed of monolithic concrete 7" deep, unless otherwise specified

Material

- Material for the concrete walks and approaches shall meet the requirements as specified

Backfill

- Backfill shall be composed of sand and gravel

General Requirements

Sand for backfill shall consist of durable particles ranging in size from fine to coarse in a uniform combination. Unwashed backrun sand and rejected concrete sand will generally acceptable under this specification. The presence of approximately 6% of fine loam particles is desirable but loam orclay lumps are not permitted. The maximum moisture content shall be 10% by weight.

Gradation

Backfill sand shall conform to the following grading requirements

Sieve Sizes	% Passing by Weight
½" sieve (sq. opening)	90-100%
No. 16 sieve (sq. opening)	45-80%
Material finer than No. 200 sieve	2-10%

Backfill gravel shall conform to the following grading requirements

Sieve Sizes	% Passing by Weight
½" sieve (sq. opening)	95-100%
No. 4 sieve (sq. opening)	35-60%
Material finer than No. 200 sieve	5-15%

Concrete for Walks and Approaches

Concrete for walks and driveway approaches shall be proportioned to contain a minimum of six (6) sacks of Air-Entraining Portland Cement, Type IA, per cubic yard of freshly mixed concrete. The coarse aggregates in the concrete shall be composed of No. 1 and 2 separate coarse aggregates.

Consistency

The consistency of the concrete shall be in such that it will have a slump of approximately three inches (3"). Consistency shall be determined in accordance with cement A.S.T.M Standard Test for Consistency of Concrete, Designation C 143-39.

Mixing

When concrete is mixed on the site of the work, it shall be mixed in a batch mixer capable of combining the aggregates, cement and water into a thoroughly mixed and uniform mass within the specified time, and of discharging it without segregation. Each batch shall be mixed for one minute or more after all solid materials are in the mixer drum. The mixer shall rotate at the rate recommended by the manufacturer. Concrete shall be mixed only in quantities required for current use. Any concrete which has partially set so that it cannot be placed properly shall not be used. Retempering of partially set concrete by mixing with additional water will not be permitted.

Concreting During Cold Weather

Placing of concrete shall cease when the descending air temperature in the shade and away from artificial heat sources falls below 40 degrees F. It shall not be resumed until the ascending air temperature in the shade and away from artificial heat sources rises to 35 degrees F.

When concreting during cold weather is permitted, the temperature of the mixed concrete shall not be less than 60 degrees F nor more than 90 degrees F at the time of placing between the forms. The aggregates or water or both may be heated. Aggregates may be heated by steam or dry heat prior to being placed in the mixer.

When concreting during cold weather and the air temperature is expected to drop below 35 degrees F a supply of straw, hay or other suitable blanketing material shall be provided along the work. At any time that the air temperature may be expected to reach the freezing point during the day or night, the blanketing material shall be spread over the concrete to a sufficient depth to prevent its freezing. Such protection shall be maintained for at least five days; if required by the Commissioner, concrete less than 24 hours old shall be covered by approved canvas or other similar enclosures or devices capable of maintaining the temperature within the concrete abovethe freezing point.

Concrete damaged by frost action shall be removed and replaced at the contractors expense.

Neither salt nor any other admixture, shall be added to the concrete to prevent freezing. However, the contractor may use magnesium free calcium chloride as admixture for an accelerator when approved by the Commissioner. If may be added if flake, pellet or solution form. The maximum quantity used shall not exceed 1% of the cement content of the mix.

Colored Concrete

****No admixture or material of any kind shall be added to the concrete to produce a concrete of other than Its natural color, unless approved by the Design Review Board.**

Preparation of Subgrade

The subgrade shall be thoroughly compacted by means of tamping. Any section of subgrade which is not firm must be removed and replaced with suitable backfill material.

Setting Forms

Forms for concrete walks and approaches shall meet the requirements stated below. They shall be set upon prepared subgrade to proper line and grade and firmly staked in position. Fine grading shall then be completed and the subgrade thoroughly compacted by hand tamping. Before placing any concrete the contact surface of the form shall be oiled.

Forms and Separator Plates

- **General Requirements** – Forms shall be of a height equal to the prescribed thickness of the concrete immediately in contact. They shall be free from wasps and kinks and of sufficient strength and rigidity, when staked, to resist any pressure or load to which they may be subjected.
- **Kind of Forms** – Metal forms shall be used upon all standard work. Only in special cases such as irregular shapes and short sections, etc., will wood forms be permitted.
- **Metal Forms** – Metal forms shall be of substantial section, having a flat top surface not less than 1 ¾ inches wide, and shall be equipped with devices to hold them to proper grad and alignment during the consolidation and finishing of the concrete. Form sections shall be tightly joined by a locking device to prevent movement in any direction.
- **Wood Forms** – Wood forms when used for standard work shall be commercial 2 inch surfaced plank. Lumber of lesser thickness will be permitted only on irregular shapes and short curves.
- **Separator Plates** – Separator plates for walk shall be of metal 5/16 inches thick or other material as approved by the D.P.W. They shall be cut to the cross section of the work upon which they are used. Only straight plates shall be used.
- **Oiling Forms & Plates** – All forms and plates shall be free from dirt and mortar, and shall have a coating of oil when being used.
- **Hand Tamp** – The hand tamp shall weigh not less than 50 pounds. Its face shall be of an area not less than 100 sq. inches.
- **Joints in Concrete Walks & Driveway Approaches** – Traverse joints for concrete walks of standard width shall be the "dummy" type, constructed at six foot (6') intervals at right angles to the edge of the walk, unless otherwise directed. These joints shall be one inch (1") in depth and 15/16 inches in width, with the edges rounded to a radius of ½ inch by using a jointer. One-half inch (1/2") expansion joint material, Type B (non-extruding) shall be placed near the street lines, at each side of driveways, at each side of alley crossings and at intervals not to exceed seventy-five feet (75').
- **Special Locations for Expansion Joint Material** – Joint material shall be furnished and placed at the following locations:

    a). Where walk adjoins the public walk or curb, ½" expansion joint material, Type B shall be placed.

    b). Where the walk is built in contact with a building, ½" joint material shall be placed between the walk and such structure. Where the face of the structure, at the point of contact with the walk, is in such condition that the material cannot be placed properly, the material shall be installed as directed.

    c). Where hydrants or poles are located in the area to be paved, ¼" joint material shall be fastened snuggly around them before concrete is placed.

    d). Where walk is built in contact with a hollow walk, ½" joint material, Type B, shall be placed against such hollow walk.

    e). Where walk adjoins an alley or driveway, it shall be separated from either by ½" expansion joint material, Type B.

Placing Concrete

Before placing concrete, the forms shall be finally checked as to line, grade and firmness of setting. After necessary corrections have been made, the subgrade shall be sprinkled with sufficient water to thoroughly dampen it, but not enough to form muddy areas, and the concrete place to the proper height, consolidated, spaded and struck off flush with the top of the forms.

Finishing

When a proper interval of time has elapsed after placing the concrete, depending on weather conditions, the surface shall be worked by means of long handled wood or metal floats. For subsequent floating and troweling long handled floats and trowels shall not be used. Floating operations will continue using a hand wood float with a circular motion until a thin

uniform mortar surface is obtained. Immediately after the water glaze or sheen has disappeared the surface shall be troweled smooth with a rectangular metal trowel operated with a circular motion. The application of neat cement to the surface is prohibited.

After the surface has obtained partial set and the water glaze or sheen, caused by troweling, has disappeared, the surface shall be brushed lightly with a damp whitewash or floor brush having soft bristles. Care shall be taken in brushing so that scratches or ridges are not formed.

Curing Agents of Concrete

All concrete work shall be cured in any one of the following ways:

Spray Coating – The material used to provide the impervious coating required for curing concrete shall when tested in accordance with the method prescribed in the Tentative Method of Tests for the efficiency of Materials for Curing Concrete A.S.T.M. Designation C 156-44 T, provide a film which will retain within the specimen at the end of 72 hours at least 85% of the water used in the concrete mix. It shall be applied to the pavement at a rate sufficient to effect the required water retention and shall form a continuous, coherent, water-impermeable film without breaks or pin-holes. The material shall be of such nature as not to react deleteriously upon the concrete. It shall produce no darkening of color of the concrete but shall be of such nature or so treated that the coating will be distinctly visible for at least four (4) hours after application.

Burlap – The burlap shall consist of one layer weighing 10 to 18 ounces per square yard or of two layers weighing not less than 7 ounces per square yard per layer.

Protection – The work shall be protected from inclement weather and closed to pedestrian traffic for 24 hours, or as long as directed by the Commissioner.

Clean-up – The contractor shall remove from public and private property all rubbish and waste materials resulting from his operations within three (3) days after removal.

Special Construction Conditions for Driveway Approaches

Removal of existing curb.

Integral Curb & Gutter – Concrete shall be removed 1 foot from back of curb in street.

Combination Curb & Gutter – Concrete shall be removed to the joint between the gutter and the street pavement.

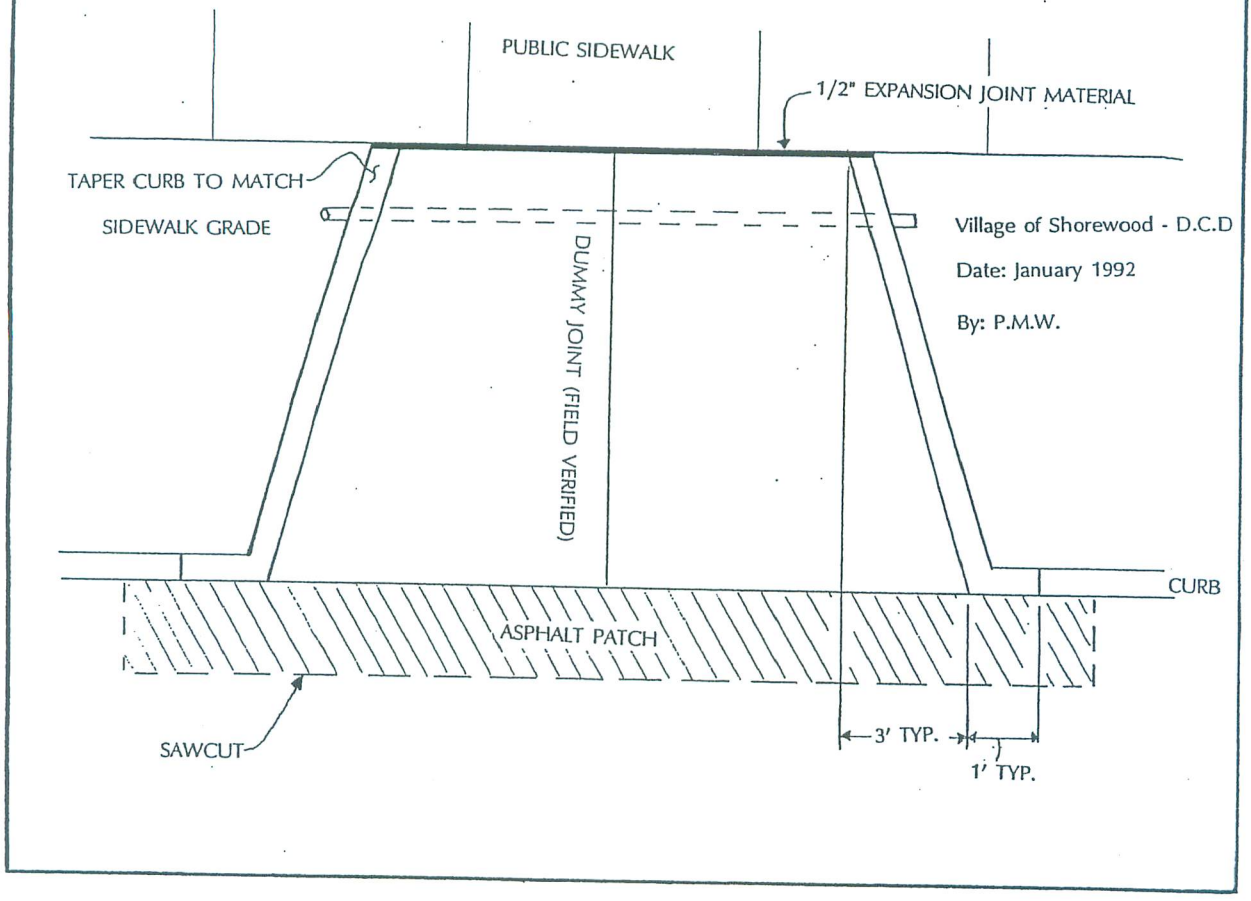
Construction Where Driveway Abuts Curb – A flare, per attached drawing, must be constructed as per section concerning construction, where driveway abuts street.

Where the street has an asphalt surface, the approach shall meet the grade of the asphalt surface at face of curb in the case of integral curb and gutter, or at the joint, in the case of combination curb and gutter.

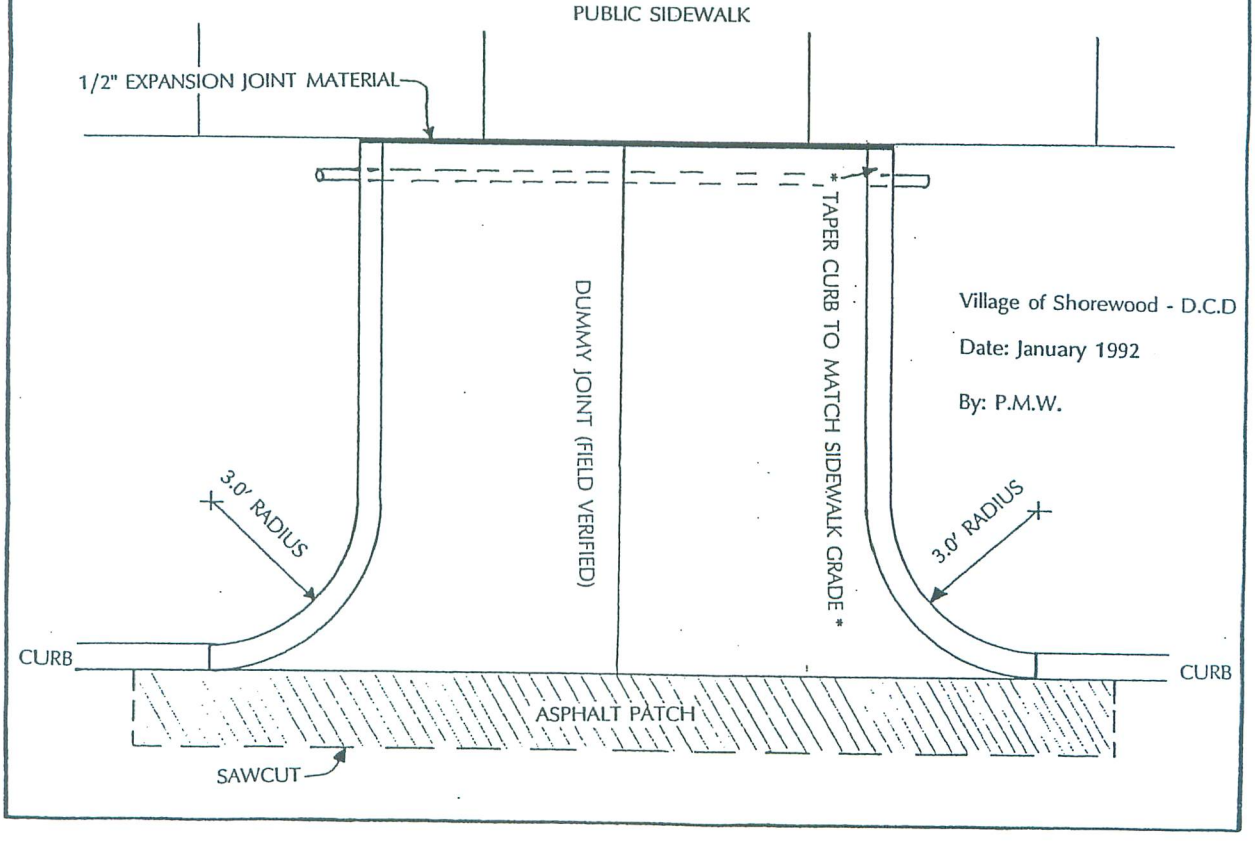
NOTE: SEE PLANS FOR DETAILS CONCERNING APPROACH ABUTTING ROADWAY.

***Approved by Village Board May 7, 1973**
****Approved by Village Board October 20, 1986**

STANDARD FLARE DRIVEWAY APPROACH

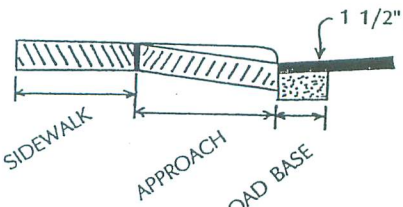


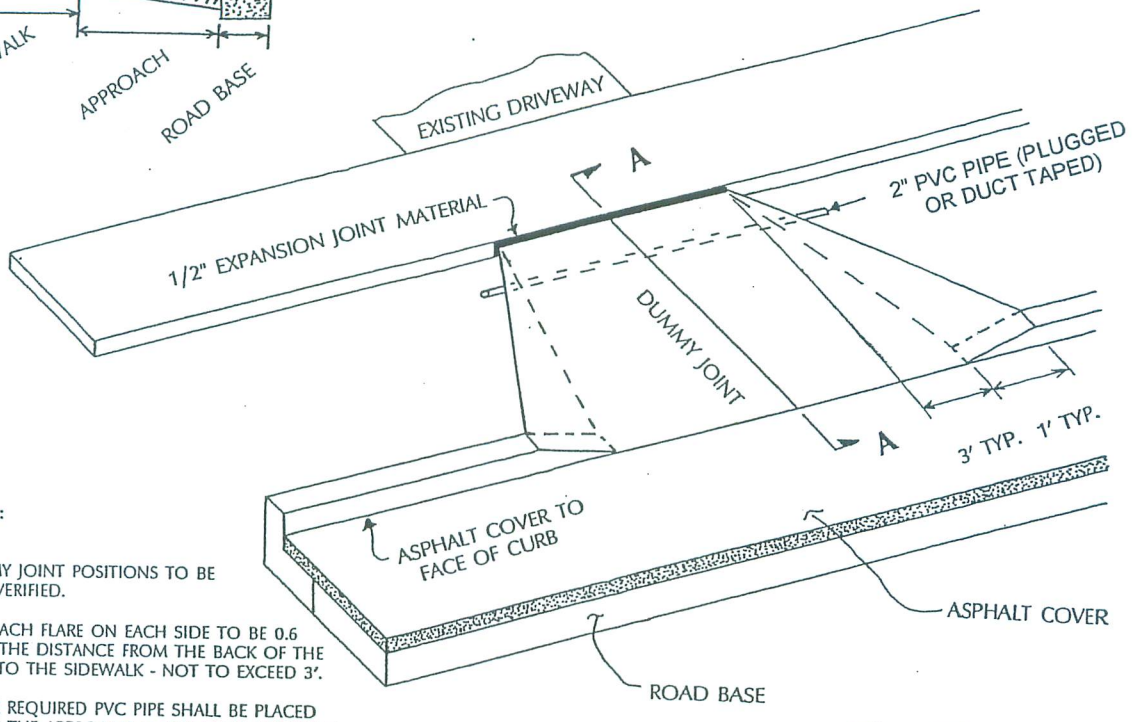
STANDARD RADIUS DRIVEWAY APPROACH



DRIVEWAY APPROACH REPLACEMENT -STREET RESURFACING PROJECT

SECTION A - A





NOTES:

1) DUMMY JOINT POSITIONS TO BE FIELD VERIFIED.
2) APPROACH FLARE ON EACH SIDE TO BE 0.6 TIMES THE DISTANCE FROM THE BACK OF THE CURB TO THE SIDEWALK - NOT TO EXCEED 3'.
3) WHERE REQUIRED PVC PIPE SHALL BE PLACED UNDER THE APPROACH 1' FROM THE SIDEWALK AND EXTENDING 6" ON EITHER SIDE OF THE APPROACH.
4) MATCH THE WIDTH OF THE APPROACH WITH THAT OF THE EXISTING DRIVEWAY.

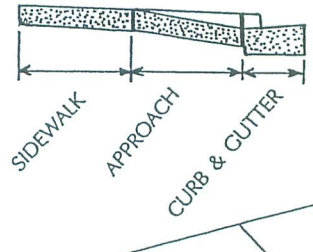
Village of Shorewood - D.C.D

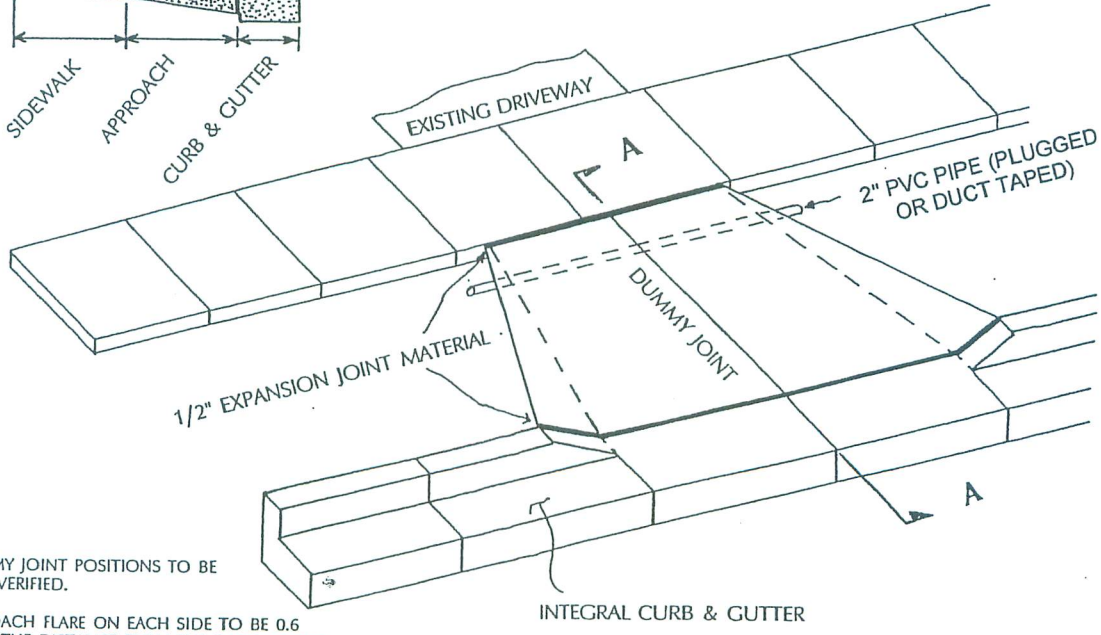
Date: January 1992

By: P.M.W.

DRIVEWAY APPROACH REPLACEMENT -INTEGRAL CURB & GUTTER TYPE

SECTION A - A





NOTES:

1) DUMMY JOINT POSITIONS TO BE FIELD VERIFIED.
2) APPROACH FLARE ON EACH SIDE TO BE 0.6 TIMES THE DISTANCE FROM THE BACK OF THE CURB TO THE SIDEWALK - NOT TO EXCEED 3'.
3) WHERE REQUIRED PVC PIPE SHALL BE PLACED UNDER THE APPROACH 1' FROM THE SIDEWALK AND EXTENDING 6" ON EITHER SIDE OF THE APPROACH.
4) MATCH THE WIDTH OF THE APPROACH WITH THAT OF THE EXISTING DRIVEWAY.

Village of Shorewood - D.C.D

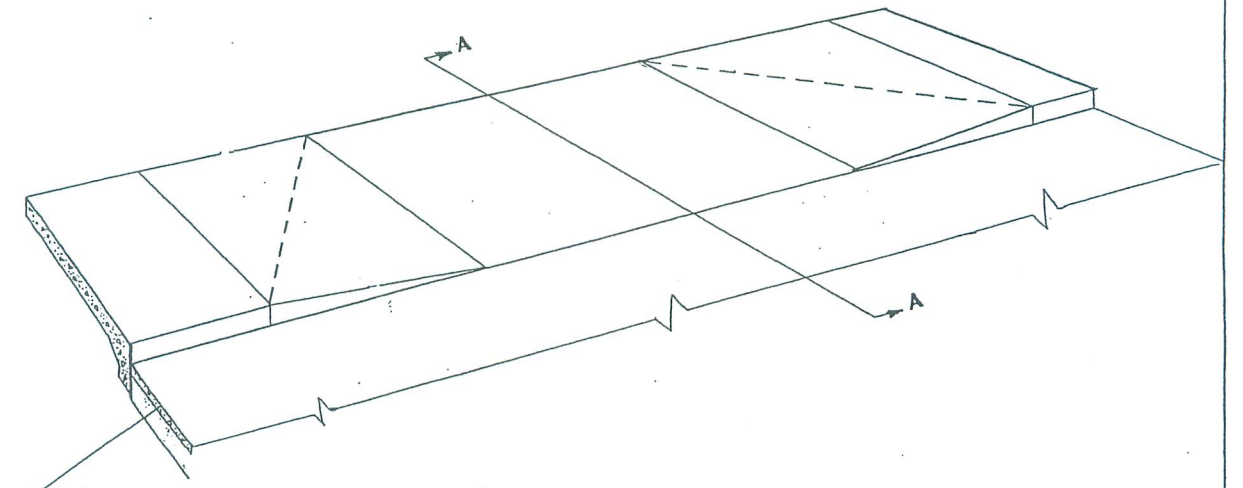
Date: January 1992

By: P.M.W.

Note : 1) Place dummy joint at field verified location

2) Slope shall not exceed one inch vertical in one foot horizontal in longitudinal or in transverse directions

SECTION A-A



ASPHALT RESURFACE TO FACE OF CURB

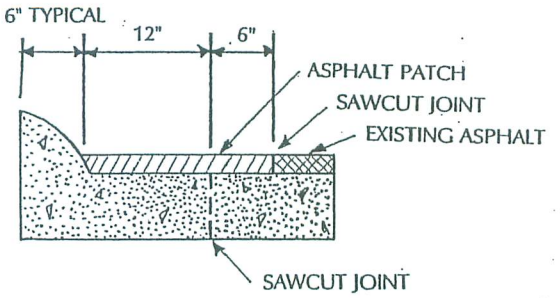
Village of Shorewood - D.C.D

Date: January 1992

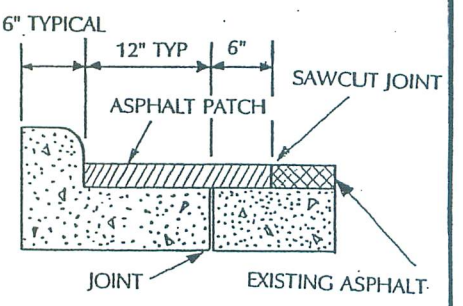
By: P.M.W.

CONCRETE DRIVEWAY WITH INTEGRAL CURB

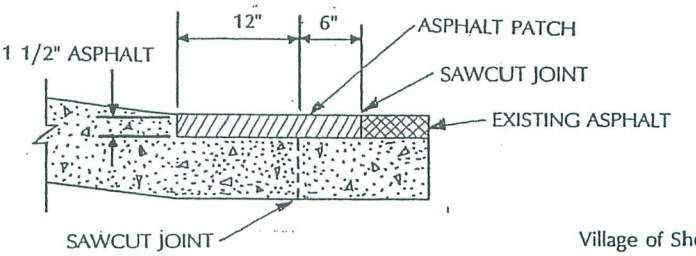
CONSTRUCTION DETAILS



INTEGRAL CONCRETE CURB



CONCRETE CURB AND GUTTER



DRIVEWAY ON STREET

Village of Shorewood - D.C.D

Date: January 1992

By: P.M.W.

8-FOOT MIN.