



SIDEWALK REPAIR MANUAL

Eighth Edition
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PBOT
PORTLAND BUREAU OF TRANSPORTATION

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INTRODUCTION

The City of Portland is committed to providing safe sidewalks for all. Maintaining Portland is a matter of pride. It is important to preserve the community for the future, and protect the community's investments in streets, sewers and sidewalks by keeping them clean, safe, looking good and working well

Title 17 of Portland City Code identifies property owners as responsible for the construction, reconstruction and maintenance of the sidewalk system abutting their property

Property owners have the option to make the repairs themselves; however, placing concrete is difficult work and requires an advanced skill set and knowledge of City codes and standards. Consider hiring a professional for the best results.

There are repair options available, depending on the amount of damage and the type of hazards. This repair manual will take you through each method, step-by-step. Each area cited for repair on your Sidewalk Repair Notice should be evaluated separately, to decide which repair method would be most effective. Sidewalk Inspectors are available to meet with property owners to discuss repair options.

A permit is required to work in the City right-of-way. Permit fees are evaluated yearly and may change each July 1st. Please see the FAQ sheet for current information on obtaining the needed permit, and the associated fee.

If you hire a contractor, the contractor will be responsible for obtaining the permit.

The tools needed for making repairs will be listed in each step. In the back of this repair manual, there is a tool glossary with pictures to help you identify the tools you will need.

If you have any questions, please call 503-823-1711 or email sidewalkrepair@portlandoregon.gov.

Thank you.

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SIDEWALK POSTING TYPES AND CRITERIA

(See Appendix I)

All hazards in the City right-of-way, latitudinal and longitudinal, shall be posted for repair.

Stub Toes (Grade/Step Separation)

A guideline of ½ -inch vertical separation for all sidewalk and driveway areas will be used to determine if a stub toe is hazardous.

Openings (Holes, Wide Cracks, Concrete Separations)

All openings, in the City right-of-way, that are considered hazardous shall be posted for repair. A guideline of ½- inch depth and/or ½- inch width will be used to determine if an opening is hazardous.

Spalled sidewalks and driveways, where the concrete is chipped to the point of creating a trip hazard, shall be posted for repair. A guideline of ½- inch width and/or ½- inch depth will be used in determining if a spalled area is hazardous.

Raised Areas

Raised sidewalks and driveways shall be posted when the raised area is hazardous. As a guideline, when the uppermost point of the raised area is greater than 4 inches from the original grade, the area may be considered hazardous.

Sunken Areas

Sunken sidewalks and driveways may be posted when it causes a trip hazard or has sunken 4 inches below the original grade.

Unused Driveway Approaches

All driveway approaches are constructed under a revocable permit and may be posted for closure if permanently unused or hazardous. Permanently unused driveway approaches, not serving legal maneuvering space on a property, as set forth in planning codes, may be closed. Examples are driveways blocked by fences, walls, landscaping, or driveways to illegal parking areas in yards.

Root Damage at Adjoining Properties

Where a tree root has lifted the sidewalk or driveway on either side of the property line, both properties may be posted to correct and maintain the grade of the sidewalk, or driveway, for both properties. Each posted property will have a notation about the adjoining property. To maintain quality of work, the properties should be repaired together. They could be repaired separately, by installing a temporary transition area, that would later be replaced during repairs made by the second property owner. In cases where it is necessary to install a transition area on the abutting property, repairs can be made without creating a hazard at the property line. Verify with a Sidewalk Inspector the area needed to make a proper transition.

Tree Wells

Hazards found in and around tree wells will be posted for repair. If, during an inspection, trees are found to be missing from tree wells, a notation is made on the posting to contact the Urban Forestry Division for tree replacement information.

Bolts in Sidewalk

Traffic sign bolts, and bases, in the City right-of-way, will be inspected and referred to the Traffic Maintenance Section to install missing signposts or eliminate the hazard. Hazardous bolts found because of City installed bike racks will be inspected and referred to the Maintenance Operations Structures Section for repair. The adjacent property owner will not be charged for this work.

Corners

City corners installed by City crews, or contractors, will comply with ADA specifications. Historical dates in existing corners will be preserved by City crews, or contractors, whenever possible, or stamped with the addition of the current year, i.e. 1933/2017. Existing dates and street names will be re-stamped as they existed in the sidewalk corner. This includes misspelled words and names that are no longer used for the street name, per City specification 00759.50(d) (Appendix II)

<ftp://ftp02.portlandoregon.gov/PBOT/CDS/2010%20Standard%20Specifications/Parts/Part%200700%20-%20Black.pdf>). Contractor names will not be replaced.

Curbs

Curbs shall be maintained by the City, except when in combination with the sidewalk, when willfully damaged, or when damaged by tree roots. See Portland City Code 17.28.020. (Appendix III)

Trees and tree roots will be protected and left undisturbed. The person(s) making the repair will contact the Urban Forestry Division at 503-823-TREE (8733) to request a root inspection, if necessary, after the curb has been excavated. Asphalt curbing will be installed, when replacement of concrete curbing could possibly damage trees and tree roots. Asphalt is flexible, allowing movement while controlling drainage.

Horse Rings

Existing horse-rings are considered historical, and are to be replaced during curb repair projects. Contact the Sidewalk Maintenance Office if existing horse-rings are damaged to the point where re-installation is not possible.

Vault Doors

Vault access doors that are considered hazardous will be posted for repair. Criteria of a ½- inch stub toe, ½- inch opening, raised/sunken, or generally in a deteriorated and/or hazardous condition shall apply.

SIDEWALK REPAIR METHODS

Obtain Permit

A permit is required to work in the City right-of-way. Permit fees are evaluated yearly and may change each July 1st. Please see the FAQ sheet for current information on obtaining the needed permit, and the associated fee.

If you hire a contractor, the contractor will be responsible for obtaining the permit.

Method 1: Grinding

Concrete grinding is one method used to remove “stub toes” that are 1 inch high or less and perpendicular to the flow of pedestrian traffic. Verify with the posting Sidewalk Inspector to determine if grinding would be an acceptable repair method.



“Stub toes” are areas in the sidewalk, where part (or all) of one square is higher than the one next to it, causing a tripping hazard for pedestrians. It may be possible to eliminate the “stub toe” hazard by grinding down the high edge.

Grinding repairs shall not exceed 1 inch vertically. The repaired section surface finish shall conform to the non-slip coefficient of friction, per standard specification section 2484.35(a). This can be achieved by roughening the surface with a saw blade or other approved method. [P-400 through P-599 Pavement Markings, Curbs, Sidewalks, Driveways and Pavements | Standard Drawings/Details \(BES & Transportation\) | The City of Portland, Oregon](#) *Verify with the posting Sidewalk Inspector to determine if grinding would be an acceptable repair method.* In some areas, sidewalk sections are lifted due to the growth of tree roots. If you grind down a stub toe caused by tree roots, the repair may only be temporary. Grind off the hazard so that the walk has a gradual slope or transition. For a ½-inch of rise, grind back 6 inches. For a (maximum) 1 inch rise, grind back 12 inches.

Tools Needed for Grinding Repair

Hand Tools	Power Tools
Gloves, Goggles, Hearing Protection, Eye Protection, Dust mask or respirator	Masonry Grinder

You will need a masonry grinder, which can be rented. See Appendix IV for rental information. Grinding concrete is noisy and dusty. Remember to wear hearing and eye protection.



If the sidewalk is raised 1 inch or less, and the concrete edges are solid, the concrete may be ground to remove the stub toe hazard. Sidewalks raised greater than 1 inch cannot be ground, as this would compromise the structural integrity of the sidewalk.

If, during grinding, aggregate becomes dis-lodged, or edges becomes spalled, or deteriorated, full depth repair will become necessary.

Areas raised in the sidewalk greater than 1 inch are to be removed and replaced at full depth.

Request a final inspection, if all posted hazards are approved for grinding. If posted hazards are to be corrected by a combination of grinding and removing and replacing concrete, a final inspection will be required after **all** repairs have been completed.

Method 2: Remove and Replace

Removal and replacement is typically used to repair the following types of hazards:



Barricades

A permit to work, in the City right-of-way, requires permit holders to erect freestanding barricades on work sites in the sidewalk, driveway, curb, and street, to warn pedestrian and/or vehicular traffic. Excavated portions of sidewalk, at entry areas, within the work site shall have barricades during construction, to prevent possible injury to pedestrian and/or vehicular traffic. The liability for an accident or injury, during construction, is the responsibility of the permit holder.

Barricades can be built out of scrap lumber, but must be a minimum of 36 inches tall. Barricades can also be rented from rental equipment businesses.



When Transition Areas are Needed

In some cases, it may be necessary to install a transition area onto the neighboring property. This process allows repairs to be made without creating a hazard at the property line. Verify with a Sidewalk Inspector to determine the area needed to make a proper transition. If adjacent properties are repaired at the same time, a transition would not be necessary.

Saw Cut and Break Up Existing Concrete

Saw cut all sections to be removed, using a concrete or masonry blade. Break up and excavate sections to the proper depth, per City Standard Drawings and Specifications, located on the City's website at: [2010 City of Portland Standard Specifications | Design + Construction | The City of Portland, Oregon](#)

Remove All Debris and Prepare the Base

All debris must be removed from the City right-of-way and barricades placed prior to requesting a form inspection. Some people use broken concrete for garden pathways or retaining walls. If you don't use it, debris can be taken to a landfill or be recycled.

City Standard Drawing P-541 (Appendix VI) requires sidewalks to be a consistent depth of 4 inches. City Standard Drawing P-528 (Appendix VII) requires driveways, including the area where it crosses the sidewalk, to be a consistent depth of 6 inches to support the weight of motor vehicles. The curb line area in driveway approaches is required to be 10 inches below street grade.

To prevent future settling, pouring concrete on bare soil is only allowed, if firm and undisturbed. For larger

excavations, it may be a requirement, that 2" crushed aggregate be placed as a base first. Also, remove any soft or muddy areas, then rock and compact. All aggregate must be compacted to 95%. City Standard Drawings and Specifications can be found on the City's website at: [P-400 through P-599 Pavement Markings, Curbs, Sidewalks, Driveways and Pavements | Standard Drawings/Details \(BES & Transportation\) | The City of Portland, Oregon](#) If rock is needed, it shall be 1" - 0 crushed rock, which will need to be compacted (using a plate compactor) to the required depth. Pea gravel is not acceptable because it does not compact.

Tools Needed to Remove Concrete

Hand Tools	Power Tools			
Gloves, Goggles, Shovel	Concrete Saw			
Sledge Hammer, Axe	Circular Saw w/ masonry blade			
Pry Bar, Rake	Jackhammer			
Pick, Broom	Truck or Trailer			
Time Estimate (in hours) for two persons:				
Number of Squares	1	2	3	4
Hours to Prepare the Site	1 ½	2 ½	3 ½	4 ½

When Tree Roots Are Involved

When tree roots are exposed in excavated areas, a root inspection is required before tree roots can be cut and removed. Contact Urban Forestry at 503-823-TREE (8733) to request a root inspection. The root inspection will be made 1 to 2 business days after the request is made. A notice regarding root removal will be attached to a barricade on site.

If there are questions about forming around roots, after the root inspection has been made, contact the posting inspector, or the Sidewalk Maintenance office at 503-823-1711 to request a form consultation. When repairing sidewalks, and driveways, that have been damaged by tree roots, it may be necessary to replace additional concrete, depending on the size and location of tree roots that are not allowed to be removed. If a transition area is needed, refer to "Transition Areas" on page 8 for information.

Unit Pavers may be used to mitigate sidewalk lifting caused by tree roots. Urban Forestry will determine when a tree and/or tree roots can be saved. A Sidewalk Inspector can determine if pavers are a good alternative, and will be permitted. See City Standard Drawings P-554 and P-572 for information on unit pavers. (Appendix V & IX)

Note: A separate permit is required to prune, plant, remove, or treat trees growing in the City right-of-way. Contact Urban Forestry at 503-823-TREE (8733) for permit information.

Placing Forms

You will need to place forms to hold the newly mixed concrete. A form is simply a 1" x 4", or 2" x 4", piece of lumber slightly longer than the excavated area, to hold the concrete in place until it hardens or cures. Drive wooden stakes into the ground on the outside of the form, every 2 to 3 feet apart, and nail the form to grade.

The stakes will keep the forms straight and secure. Stakes should be placed slightly lower than the form to not cause interference when the concrete is screeded.



When repairing sidewalks and curbs damaged by tree roots, a form consultation will be necessary to discuss the following options:

Radius Block outs

To reduce the width of the sidewalk, where roots have encroached into the sidewalk, use a radius block out. This will also leave room for root expansion, when the Urban Forestry Inspector will not allow roots to be cut and removed.



Reduce Sidewalk

Sidewalks that are 6-foot-wide may be reduced 1 foot, if necessary, in cases where roots are encroaching into the sidewalk, and the Urban Forestry Inspector will not allow root removal. Sidewalks can be reduced to 4-foot-wide in extreme cases, only with approval of a Sidewalk Inspector.



Ramp Over Roots

When roots cannot be removed, as determined by the Urban Forestry Tree Inspector, the grade of the sidewalk may need to be elevated, building a ramp over the roots. Consult with a Sidewalk Inspector.



Note: It may be necessary to utilize the set-back area of the public right-of-way, to install sidewalk, when trees are involved.

Drop Curbs

See Appendix VIII - City Standard Drawing P-540-Curb

Asphalt curbing is used when the replacement of concrete curbing could damage the tree or tree roots. The asphalt is flexible and allows movement while controlling drainage.



Tools Needed to Form Concrete

Hand Tools	Materials
Tape Measure, Hand Saw	Lumber, Survey Stakes
Hammer, String Line, Level	Nails, Black Felt Expansion
Time Estimate (in hours) for two persons:	
Number of Squares	1 2 3 4
Hours to Prepare the Site	1/4 1/2 1/2 3/4

Request Form Inspection

After all posted areas have been excavated to proper depth, forms have been set, barricades are in place, and all debris has been removed from the City right-of-way, fill out the online form at:

www.portlandoregon.gov/transportation/sidewalks to request a form inspection. You can also call the Sidewalk Maintenance Office at 503-823-1711 to request a form inspection. Provide the posted address and the affidavit number. Inspections will be made Monday through Friday, excluding holidays. Requests must be received by 6:30 am to obtain an inspection that day. Requests made after 6:30 am, will be inspected the next business day. An inspection card will be attached to a barricade on site indicating whether the formwork passed inspection.

If an inspection card reading "Do Not Pour Concrete" is given, the deficiencies need to be corrected and another form inspection requested. Once an approved form inspection card is issued, "Permission Granted to Pour Concrete," concrete may be poured.

Concrete replacement will be tooled to match existing patterns and have a broomed finish per City Specifications. [P-400 through P-599 Pavement Markings, Curbs, Sidewalks, Driveways and Pavements | Standard Drawings/Details \(BES & Transportation\) | The City of Portland, Oregon](#)

Contraction/Expansion Joints

Place joints at the direction of the Sidewalk Inspector.

Expansion material is a pre-molded strip, made of tar-impregnated black felt like material, that can be purchased in most building supply stores. Gray recycled paper expansion material is not acceptable. Wood strips, including cedar and pressure treated lumber, are not acceptable as it decays over time. Expansion material will be used as directed by the Sidewalk Inspector.

Typical locations for expansion joints, or contraction joints, are as follows:

1. Between different thicknesses of concrete: to separate a 4-inch sidewalk from a 6-inch driveway.
2. Continuation of existing expansion joints or contraction joints.
3. Grade breaks: where the concrete grade will change, or be different i.e. ramping over tree roots.
4. Expansion material or bond breaker will need to be used around objects such as buildings, retaining walls, or utility poles.
5. Deep joints are typically spaced at a dimension twice the width of sidewalk.

Use a straight 1" x 4", or 2" x 4", backboard slightly shorter than the length of the expansion material to place behind the expansion material and stake into place. Place fresh concrete on both sides of the expansion joint and then remove the backboard and the stakes. The concrete will hold the expansion straight and to grade.



After Permission Granted to Pour Concrete:

Tools Needed for Placing and Finishing Concrete

Hand Tools		Materials		
Rubber Boots and Gloves	Screed Board	Ready Mixed Concrete		
Mortar box or Wheelbarrow	Bull Float	Dry Concrete Mix (Premix or Sakcrete)		
Shovel, Water Hose	Hand Float, Broom	Dry Cement for Sakcrete		
Steel Trowel, Jointer Tool	3/8" Radius Edger Tool (3" typical-match existing)			
Time Estimate (in hours) for two persons:				
Number of Squares	1	2	3	4
Placing, Leveling Concrete	2	2	2.5	2.5

Determine How Much Concrete is Needed

Measure the width and length of the area(s) you must fill with concrete. This will give you the area in square feet. Refer to the chart below and figure out about how many cubic yards of concrete you will need. An average city sidewalk square is 9 square feet (3 foot by 3 foot). Sidewalks are 4 inches deep; so, for one repair area you would need 1/9 of a cubic yard of concrete.

Depth of Concrete	Area (width x length) In Square Feet						
	9	18	27	36	80	160	240
4" Sidewalk (In Cubic Yds.)	1/9	1/4	1/3	1/2	1	2	3
6" Driveway (In Cubic Yds.)	1/6	1/3	1/2	2/3	1 ½	3	4 ½

Placing and Finishing Concrete

Once you know how much, and what kind of concrete to use, and are ready to place the concrete, the next steps come fast. Make sure you understand beforehand what you will be doing. Have the necessary tools ready and the steps clearly in mind.

Concrete Options

City Standard Construction Specification Section 02001.10 requires Portland Cement Concrete used in the construction and repair of sidewalks, driveways, and curbs, shall have a minimum specified compressive strength of 3300 psi, with a of 4-inch maximum slump. Slump is a measurement of the consistency of concrete. The addition of too much water (higher slump) will weaken concrete.

If you need 3 to 7 cubic yards or more, concrete can be purchased from a local source and be delivered. Some companies will not deliver on the weekend, so schedule accordingly.

If you need 1 to 3 cubic yards or less, you may want to mix it yourself, purchase ready-mixed concrete that you haul yourself in a supplied trailer, or utilize a meter mix truck that mixes the concrete on-site.

To mix it yourself you will need dry concrete mix such as “Premix” or “Sakcrete”, which can be purchased from a building supply store. Check the specifications on the bag to determine if the concrete mix meets the 3300-psi minimum strength. You can use a mortar box or a wheelbarrow to mix in, and a square point shovel or garden hoe for mixing. When ready, add water a little at a time until workable. Concrete should be placed immediately after mixing.

Note: Do not place concrete when freezing weather is expected, as it will not cure correctly and will need to be replaced.

It is not recommended to pour concrete if very hot weather is expected, as it will cure too quickly and may have to be replaced.

When pouring concrete during rainy weather, be prepared to tent areas with plastic while finishing concrete, to prevent water damage.

Skin

There is lime in concrete which can harm human and animal skin. Wash it off as soon as possible, with soap and water, or wear rubber gloves and boots to prevent direct contact with the concrete.

Clothing

Let the concrete dry if it gets on your clothing, and then brush it off. Be sure it is all brushed off before putting your clothes into the washing machine or it could damage the machine.

Wet Down/Soak the Base

Keep the base moist until the concrete is poured. Dry ground will draw moisture from the concrete and the concrete will cure too quickly. The base needs to be soaked but not so much that it holds water or becomes extremely muddy. If this occurs, or there have been several days of rain, the excess water and/or mud should be removed, rocked, and then compacted again before pouring concrete.

Placing and Leveling the Concrete

After you pour the concrete into the form, spread it out as evenly as you can with a shovel, leaving it slightly higher than the existing sidewalk.



Next use the edge of a 2" x 4" board or “screed”, that reaches across the entire width of the formwork and move it across the surface in a sawing motion. Concrete should be the same grade as the existing formwork, which should be at existing grade of abutting sidewalk.

Floating

Next, level off any high areas of concrete and fill in any low areas, before the concrete begins to harden. Use a bull float. Push it back and forth across the width of the area you are replacing. Then push it back and forth across the length of the area being replaced. If you must add any concrete to fill low areas, push the float across again. After floating, surface should not have holes or high spots.



Use the magnesium hand float for small areas, perimeters, and around obstructions.



Caution

Concrete can easily be overworked. Do not pass the float over the slab more than a few times because this can produce a weak surface with low wear resistance.

Breaking the Edges

You'll need an edger tool. Draw it along all outside edges that were formed, including both sides of any expansion joints. This pushes larger rock pieces down, and prepares the edges for final finishing.



Note: The following steps must be done AFTER the water on top of the concrete has evaporated and the sheen has vanished.

Troweling

Take a steel finishing trowel and slide it straight across the top. This step brings water to the surface and seals the concrete. To finish, take the steel trowel and work it in arcs, with each new arc removing the heel mark from the arc before.



Brooming

Take a concrete broom or paint brush and draw it across the new concrete transverse to (opposite of) the direction of travel to give the concrete a light broom finish. The broom finish creates traction, making the sidewalk less slippery for pedestrians. Timing for this step is critical. If the surface is broomed too soon, it will deteriorate prematurely. If the surface is broomed too late, it won't have enough traction.



Shine the Edges

Draw the finish edger along all outside edges that were formed, including both sides of any expansion joints.



Shallow/Decorative Joints

Shallow joints are the grid, or score lines, across the width and length of a sidewalk. Match the existing joint pattern in your sidewalk. Using a back and forth rocking motion, place the shallow joints with a jointing tool. (Appendix X)



CURB REPLACEMENT

Curbs shall be maintained by the City, except when in combination with the sidewalk, when they have been willfully damaged, or when damaged by tree roots. See Portland City Code 17.28.020 (Appendix III)

Curbs that are separated from the sidewalk by a planting strip, and that have not been willfully damaged or damaged by tree roots are the City's responsibility. PBOT crews will maintain curb, as resources allow, at no cost to property owners.

Setting Curb Forms

You will need to place forms to hold the concrete. The specification for standard curb in the City of Portland is 16 inches overall (Appendix VIII); 6 inches exposed/above the existing street and a minimum 10 inches below the existing street. For the backside of the curb place forms that will cover the entire height and length. The form for the back is usually $\frac{3}{4}$ -inch plywood. Place wooden or metal stakes behind the form spaced approximately 2 feet apart and then nail the form to proper grade.

The form for the face of curb will vary in height; depending on the height of the curb being replaced. The face form is usually a 2 x 6 inch or 2 x 8-inch piece of lumber cut slightly longer than the open area and placed against the face of the existing curb on both ends. Wooden or metal braces are then used to hold the top and bottom of the face form in place. The stakes and braces will hold the forms straight and secure. If there is sidewalk abutting the back of the curb you will only need a form for the face of the curb

Place Concrete in Curb Forms

You will need to spray or brush a form release agent on the inside of the forms to prevent the concrete from sticking. After you pour the concrete into the forms, level and strike off the concrete even with the top of the back form. Then place an edge on the top of the curb while the concrete is still wet. Use a $\frac{3}{4}$ inch radius edger for the top front of the curb and a $\frac{3}{8}$ -inch edger for the top back of the curb.

After the concrete has lost the watery sheen on top, use the float to smooth and level the concrete once more then use both edgers again. When the concrete is firm enough to stand on its own remove the face form. Once the form is removed fill in any voids with some of the concrete spillage, smoothing the front of the curb as you go. Then use a curb broom or a stiff bristled paint brush to put the final finish on the curb.

GRAFFITI, VANDALISM AND FOOTPRINTS

To remove unwanted graffiti, vandalism, and footprints in wet concrete, proceed as follows:

1. Use the edge of your hand float and plane off any high spots.
2. Pat the concrete with your float to draw moisture.
3. If necessary, mix up a tiny batch of concrete to fill in any holes.
4. Use a steel finishing trowel to seal the concrete surface.
5. Take a soft broom or paint brush and draw it across the concrete transverse to (opposite of) the direction of travel to give the concrete a light broom finish.

To address graffiti, vandalism, or footprints in freshly cured concrete, it may be necessary to use a grinder to remove the high spots. Then mix a small batch of 2 parts sand, to 1 part Portland Cement to fill any holes, and then follow steps 4 & 5 above.

CLEAN UP

Leave the barricades up for about 2 days. The time it takes the concrete to cure varies depending on the weather, and the size of the job. A minimum of 2 days must elapse between the day the concrete was poured, and the day of the final inspection. When repairs are made in driveway areas, it is recommended that the new concrete not be driven on for at least 7 consecutive days, to ensure proper curing. This will help to prevent cracking.

Request a Final Inspection when the project is finished. Concrete work must be completed, all forms removed, all voids are backfilled with dirt and compacted, and job site has been cleaned up.



REQUEST FINAL INSPECTION

When concrete work is completed, all forms are removed, all voids are backfilled with dirt, and compacted to the top edge of the new concrete, and job site has been cleaned up, a final inspection must be requested. Fill out the online form at: www.portlandoregon.gov/transportation/sidewalks to request a final inspection. You can also call the Sidewalk Maintenance Office at 503-823-1711 to request a final inspection. Provide the posted address and the affidavit number. Inspections will be made Monday through Friday, excluding holidays. Requests must be received by 6:30 am to obtain an inspection that day. Requests made after 6:30 am, will be inspected the next business day. An inspection card will be attached to a barricade on site indicating whether the formwork passed inspection. If the work is found satisfactory, a "Repairs are Complete" inspection card will be left at the door, excluding businesses and rental properties, and the Sidewalk Repair Notice will be closed. If work is found unsatisfactory, a "Repairs Not Acceptable" inspection card will be left at the door, excluding businesses and rental properties. The card will specify any corrections that need to be made. Another final inspection, and possibly another form inspection, must be requested.

Inspection cards for businesses and rental properties will be brought back to the office and filed with the corresponding posting.

APPENDIX I – SIDEWALK POSTING STANDARDS



SIDEWALK MAINTENANCE STANDARDS

July 2017

Any one or more of the below criteria applies to sidewalk, driveway and driveway setback areas in the city right of way where concrete or asphalt exists.

These are general guidelines and the Sidewalk Inspector will use his/her professional judgment to determine additional needed repairs.

1. Trip hazard.

Sidewalks will be posted for hazards when there is a vertical step separation equal to or greater than $\frac{1}{2}$ ".



2. Openings or cracks. Sidewalks will be posted for hazards when openings or holes in the sidewalk equal or exceed $\frac{1}{2}$ ".



3. Spalling sidewalks.

Sidewalks will be posted for hazards when the sidewalk surface is chipped or deteriorated to a depth equal or greater than $\frac{1}{2}$ ".



APPENDIX II – EXCERPT FROM CITY OF PORTLAND CONSTRUCTION SPECIFICATIONS: SURFACE FINISHING

00759.50 Surface Finishing:

(a) General - Remove forms, if any, from structures after the concrete has taken its initial set and while the concrete is still green. Repair minor defects with mortar containing one part portland cement and two parts sand. Do not plaster exposed surfaces.

The top and face of structures shall be true and straight, free from humps, sags, or other irregularities. The surface shall not vary more than 1/4 inch from the edge of 12 foot long straightedge laid on the top or face of the structure, except in curves. Furnish the straightedge and operate it as directed. Unless otherwise shown or directed, tool edges to 1/4 inch radius.

(b) Curbs, Islands, and Stairs - While the concrete is still green, finish the exposed surfaces as required to produce a smooth surface and uniform texture.

(c) Driveways, Walks, and Surfacing's - Finish concrete surfaces to smooth and uniform texture by troweling, floating and cross brooming. Lightly groove or mark surfaces into squares or other shapes to match markings on similar existing surfaces in the vicinity, as directed. On all sidewalk ramps and accessible route islands, install truncated domes as shown. Place according to the manufacturer's recommendation.

(d) Historic Dates and Names - Historic dates and street names in existing sidewalk corners will be preserved or restamped into the new concrete. Stamp the dates or names in the curb as close to the original location as practical. Restamp the dates and names exactly as they existed in the sidewalk corner. This includes misspelled words and names that are no longer used for the street name. However for dates, the original date with a slash and the current date are required to be restamped into the new corner curb. Do not preserve or re-stamp Contractor names.

A set of stamping tools is available for loan through the Street Construction Office on a first-come, first-serve basis.

APPENDIX III – RELATED EXCERPTS FROM CITY CODE

17.28.020 Responsibility for Sidewalks and Curbs.

(Amended by Ordinance Nos. 182760, 183397 and 184957, effective November 25, 2011.)

A. The owner(s) of land abutting any street in the City shall be responsible for constructing, reconstructing, maintaining and repairing the sidewalks, curbs, driveways and parking strips abutting or immediately adjacent to said land, except as provided in Subsections B. and C. Said property owner(s) shall be liable for any and all damages to any person who is injured or otherwise suffers damage resulting from the defective condition of any sidewalk, curb, driveway or parking strip adjacent to said land, or by reason of the property owner's failure to keep such sidewalk, curb, driveway or parking strip in safe condition and good repair. Said property owner(s) shall be liable to the City of Portland for any amounts which may be paid or incurred by the City by reason of all claims, judgment or settlement, and for all reasonable costs of defense, including investigation costs and Attorney fees, by reason of said property owners' failure to satisfy the obligations imposed by the Charter and Code of the City of Portland to maintain, construct, and repair such sidewalks, curbs, driveways and/or parking strips.

B. Curbs shall be maintained by the City, except when in combination with the sidewalk and when they have been willfully damaged or damaged by tree roots. Intersection corners and curbs adjacent thereto may be installed by the City when sidewalks and curbs are constructed up to the intersection on the same side of the street.

C. Green street or other public stormwater management facilities located within the right-of-way shall be modified or repaired only by the City or under an appropriate permit from the Bureau of Environmental Services.

D. The City Engineer shall maintain general construction and maintenance specifications for sidewalks, curbs, driveways and/or parking strips. The City Engineer shall use the specifications to determine compliance with this Chapter of Code. The Director of the Bureau of Transportation shall provide copies of the specification to any person upon request, and make the specifications available for public inspection during normal office hours.

17.28.080 Permit for Sidewalk and Curb Repairs.

(Amended by Ordinance Nos. 183348 and 186083, effective July 12, 2013.) After notice to repair defective sidewalk or curb, or both, has been posted, the owner, agent or occupant shall make the repairs within 60 calendar days from the date of posting. Any person desiring to repair a defective sidewalk, curb or both, either before or after notice to repair has been posted, shall first obtain a permit. The permit shall prescribe the kind of repair to be made, the material to be used, and specifications therefore, including the location and size. Any person desiring to construct or reconstruct sidewalk or curb, or both, shall first obtain a permit therefore and pay the fees elsewhere prescribed in Chapter 17.24.

APPENDIX IV - MATERIALS, SERVICES, and TOOLS

What to Use and Where to Find Them

Many of the tools and materials used in sidewalk repair are not normal household items. Due to legal restrictions, we the City are not allowed to recommend specific contractors or specific stores which might have the best deals or the most knowledgeable sales people.

Product and Service Classifications in the telephone book is where you will find everything you need. Time spent on the telephone or internet doing some comparison-shopping could save you time and money.

Product and Service Classifications

Barricades

Building Materials Retail

Concrete Contractors

Concrete-Ready Mixed

Garbage & Rubbish Collection/Drop Boxes

Landfills and Transfer Sites (Dump)

Recycling Services

Rental Service Stores

(Equipment and Tools)

Sand and Gravel













Stump Removal










Tree Service

Tools, Used

Trailer and Truck Rental

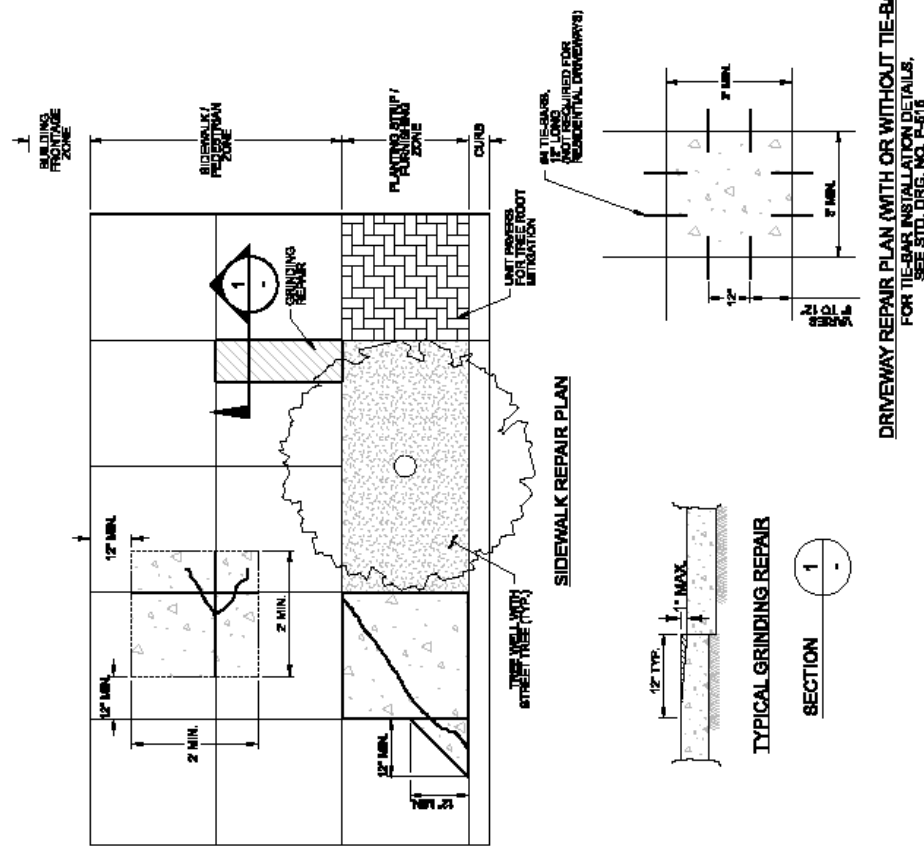
Following is a tool glossary with pictures to identify the types of tools needed to make sidewalk, driveway and curb repairs.

			
Axe	Boots	Bull Float	Concrete Boom
			
Concrete Edger	Concrete Grover	Concrete Hand Float	Gloves
			
Finishing Trowel	Hammer	Hand Saw	Level

			
Mortar Box	Pick Mattock	Pry Bar	Rake
			
Round Point Shovel	Safety Glasses	Screed Board	Sledge Hammer
			
Square Point Shovel	Tape Measure	Water Hose	Wheelbarrow

NOTES:

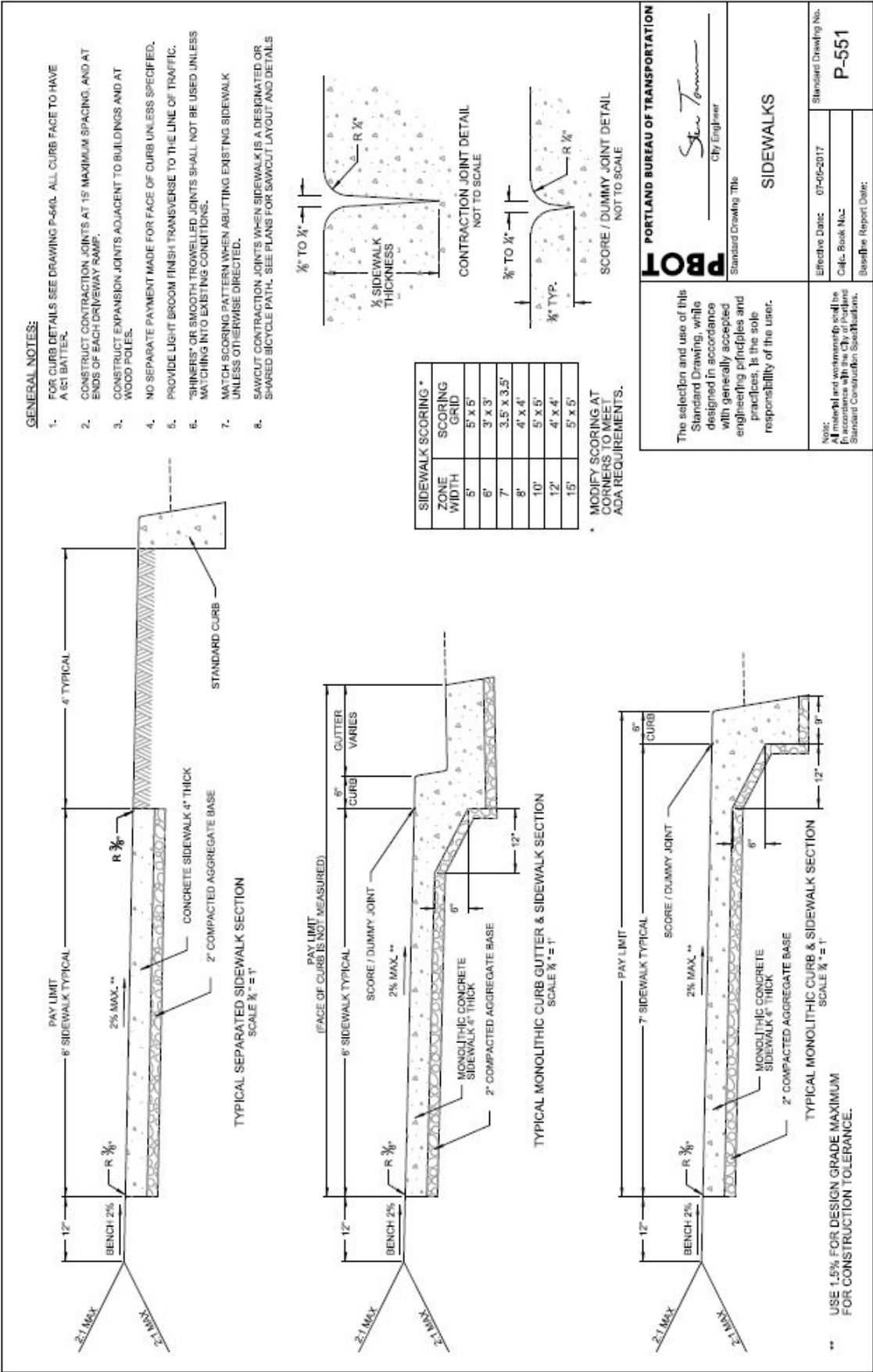
1. SIDEWALK REPAIRS ARE REQUIRED BY THE CITY FOR HORIZONTAL AND VERTICAL DISPLACEMENT 1/4" OR GREATER AND FOR SUNKEN OR RAISED SIDEWALKS EXCEEDING 1" FROM ORIGINAL GRADE. GENERAL SURFACE DETRIORATION AND OTHER CONDITIONS MAY ALSO REQUIRE SIDEWALK REPAIRS.
2. SAWCUT ALL SIDEWALK SECTIONS TO BE REMOVED. ALL SAW OVERCUTS SHALL BE A MINIMUM OF 1" FROM EDGE OF WALK AND EXISTING JOINTS.
3. REPAIR SIDEWALK AND DRIVEWAYS USING ALL APPLICABLE CITY STANDARDS.
4. USE 2" X 2" MINIMUM REPAIR SIZE IN SIDEWALKS AND 3" X 3" MINIMUM REPAIR SIZE IN DRIVEWAYS. ALIGN REPLACEMENT SECTIONS PARALLEL OR PERPENDICULAR TO EXISTING SCORING / JOINTS TO MAXIMUM EXTENTS PRACTICABLE.
5. REPLACE ALL SCORE LINES PER EXISTING SCORING PATTERNS.
6. CROSSING EXPANSION JOINTS IS NOT ALLOWED. IF REPAIRS ABOUT EXISTING EXPANSION JOINT, ON BOTH SIDES, FORM / POUR SECTION MONOLITHICALLY AND REPLACE EXPANSION JOINT WITH SCORE LINES).
7. GRINDING SHALL ONLY BE ALLOWED BY PRIOR APPROVAL. GRINDING REPAIR SECTION SHALL NOT EXCEED 1" VERTICALLY. SEE TYPICAL SECTION 1.
8. GRINDING REPAIR SECTION SURFACE FINISH SHALL CONFORM TO THE NON-SLIP COEFFICIENT OF FRICTION PER STANDARD SPECIFICATION SECTION 02404.2500. THIS CAN BE ACHIEVED BY ROUGHENING THE SURFACE WITH A SAW-BLADE OR OTHER APPROVED METHOD.
9. CONCRETE PAVEMENT REPAIR SECTION SHALL BE A MINIMUM OF 8" X 8" OR TO THE NEAREST JOINT.
10. CONCRETE PAVEMENT REPAIRS MAY BE USED TO MITIGATE SIDEWALK LIFTING AND TREE ROOT PROBLEMS. COMPLETE REPAIR TO THE NEXT FULL JOINT AND 6" MIN. AREA. SEE STD. DWE. NO. 4-672 FOR FULL PAVER DETAILS.
11. SKIN PATCHING / PLASTERING IS ONLY ALLOWED AT VAULTED AREAS OF SIDEWALK. 1" DEPTH MINIMUM REPAIR. COORDINATE WITH CITY ENGINEER AND/OR INSPECTOR.
12. TRIANGULAR REPAIRS SHALL:
 - HAVE TWO SIDES NO LESS THAN 4" AND NO GREATER THAN 8"
 - HAVE TWO CORNERS NO LESS THAN 30 DEGREES
 - NOT CONTAIN ANGLES GREATER THAN 90 DEGREES
 - BE LESS THAN OR EQUAL TO 1/4" OF ANY SIDEWALK PANEL DEFINED BY A SCORE LINE OR JOINT.
 - NOT BE USED IN DRIVEWAYS.
13. WHEN TREE ROOTS ARE IN CONFLICT WITH THE REPLACEMENT OF SIDEWALKS (I.E. ROOTS ARE IN THE SIDEWALK SECTION), ROOT REMOVAL BY THE CITY FORESTER IS REQUIRED BEFORE CUTTING AND/OR REMOVING ANY ROOTS.
14. FOR DRIVEWAY REPAIRS:
 - WHEN EXISTING CURB EXPOSURE IS 6" OR LESS, OMIT THE 1" LIP IN DRIVEWAY APRON.



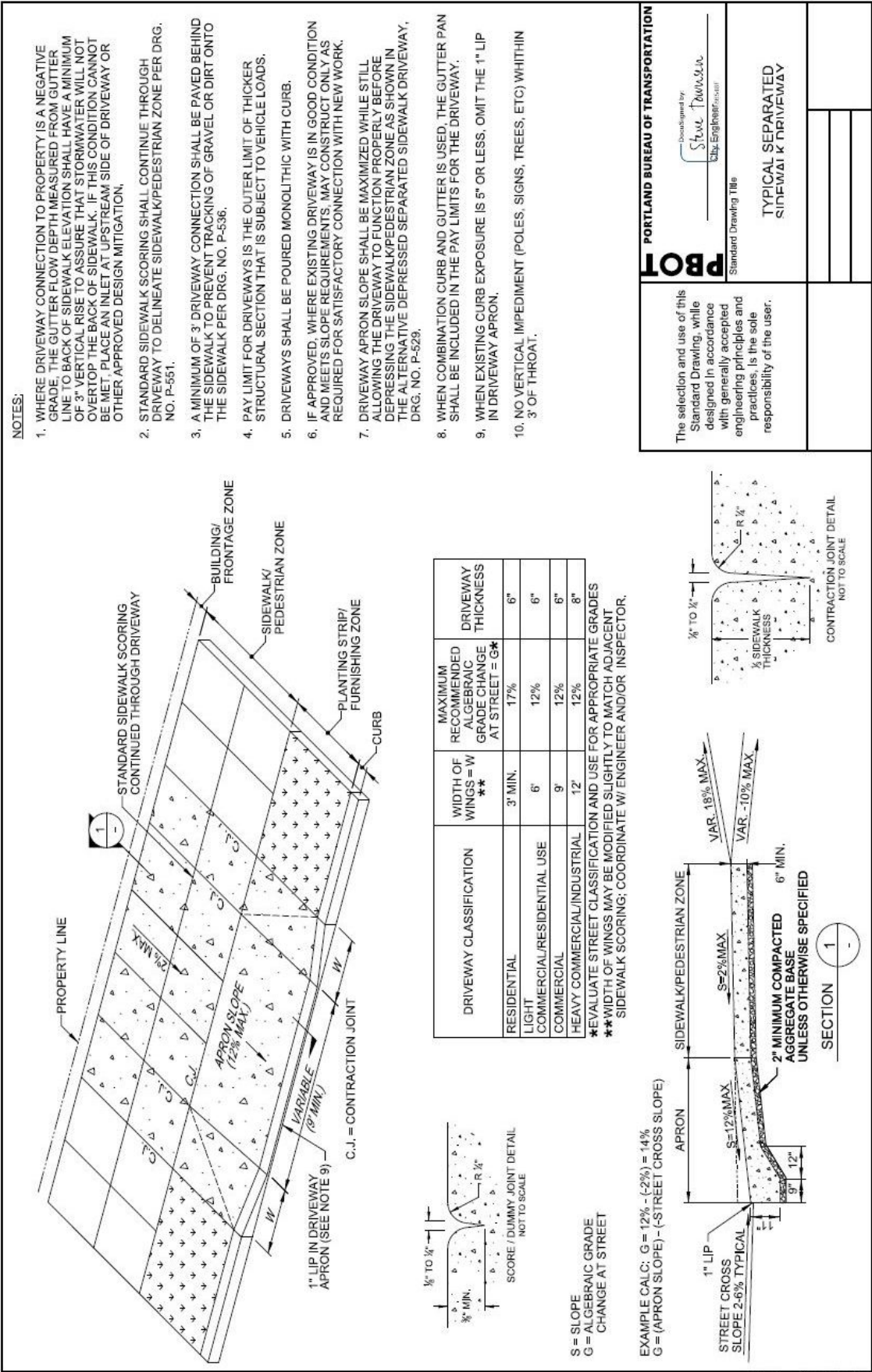
NOT TO SCALE

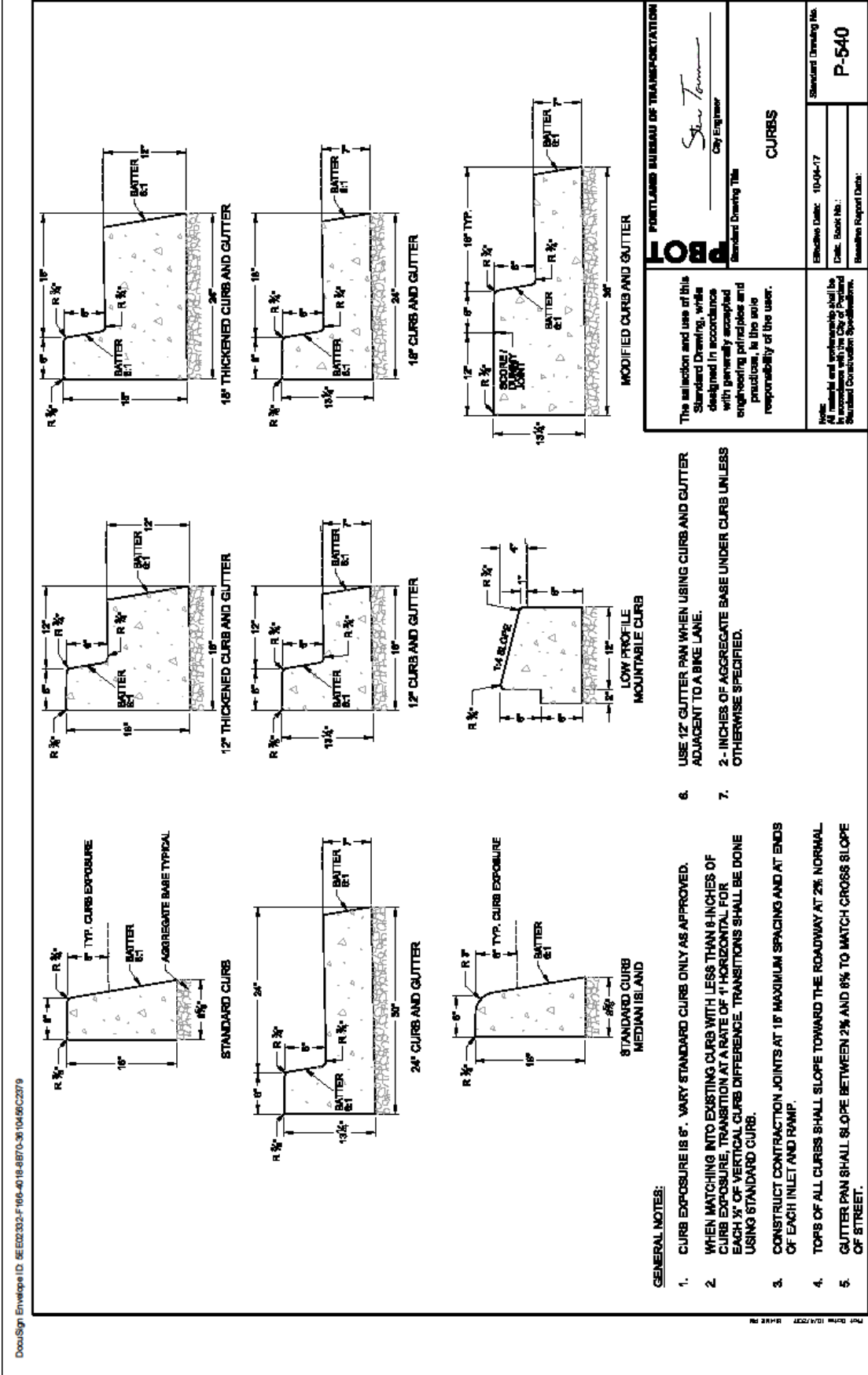
<p>The selection and use of this Standard Detail write designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user.</p>	<p>PORTLAND BUREAU OF TRANSPORTATION</p> <p>Job No. _____</p> <p><i>Sta. 7</i> _____</p> <p>City Engineer</p> <p>Standard Detail Title</p> <p>TYPICAL SIDEWALK & DRIVEWAY REPAIR (BY PROPERTY OWNER)</p>	<p>Effective Date: 01-01-2017</p> <p>Standard Detail No.</p> <p>P-554</p> <p>Critic. Detail No. : _____</p> <p>Authorizing Council District: _____</p>
<p>Write All sample and endorsement shall be in accordance with the City of Portland Standard Construction Specifications.</p>		

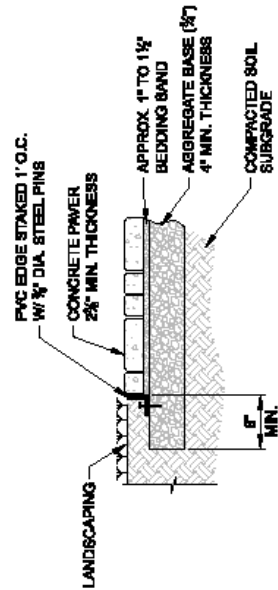
APPENDIX VI - SIDEWALK STANDARD DRAWING



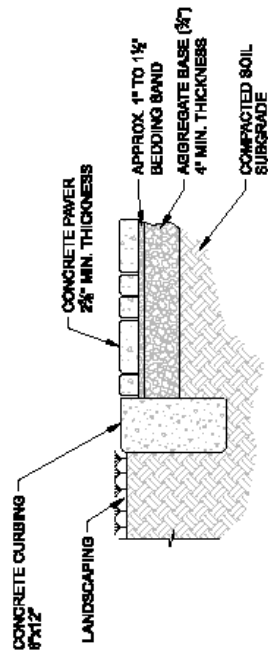
APPENDIX VII - TYPICAL SEPARATED SIDEWALK/DRIVEWAY







PAVERS WITH PVC EDGE



PAVERS WITH CONCRETE EDGE

NOTES

1. CONCRETE PAVERS MAY BE USED IN THE PEDESTRIAN ZONE ONLY TO ADDRESS TREE ROOT CONFLICTS AND REQUIRES PRIOR APPROVAL BY CITY ENGINEER.
2. PAVERS SHALL BE GRAY EXCEPT FOR DESIGN DISTRICTS THAT REQUIRE OTHERWISE.
3. MINIMUM 6"x6" PAYER AREA IN PEDESTRIAN AREA.

<p>The salience and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user.</p>	<p>PORTLAND BUREAU OF TRANSPORTATION</p> <p><i>Stan Turner</i> _____ City Engineer</p> <p>Standard Drawing Title</p> <p>SIDEWALK - CONCRETE PAVERS</p>	<p>Notes: All materials and workmanship shall be in accordance with the City of Portland Standard Construction Specifications.</p>	<p>Effective Date: 10-04-17</p>	<p>Standard Drawing No.</p> <p>P-572</p>	<p>DRAWN: _____ CHECKED: _____ DESIGNED: _____ REVIEWED: _____</p>
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APPENDIX X - CITY SPECIFICATIONS

The sidewalk inspector will use the following requirements to determine if your hard work meets City specifications and approval to place and finish the concrete:

- 1. Sidewalk cross slope shall be 2% (1/4 inch per foot) towards the curb, unless directed otherwise by the sidewalk inspector.
- 2. Control joints must be spaced no further than 12 feet apart in 6-foot wide sidewalks and no further than 10 feet apart in 5-foot wide sidewalks.
- 3. Minimum thickness shall be a consistent depth of 4 inches for sidewalks and 6 inches for driveways.
- 4. Soil shall be firm or plate compacted if crushed rock is used for base material.
- 5. All spalls (chipped edges) are to be saw cut and removed and all edges are to be vertical.

It is required to provide a soft broom finish and match the existing grid pattern, where there are existing sidewalks, unless otherwise directed by the Sidewalk Inspector.

Sidewalk Width	Scoring/Grid Pattern
5'	5' x 5' or 2.5' x 2.5'
6'	3' x 3'
7'	3.5' x 3.5'
8'	4' x 4'
10'	5' x 5'
12'	4' x 4'