City of Portland
CADD Level / Layer
Naming Guide

CITY OF PORTLAND
OFFICE OF TRANSPORTATION

ENVIRONMENTAL SERVICES
CITY OF PORTLAND

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CADD Level / Layer
Naming Guide

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CADD Level / Layer Naming Guide
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SECTION 1.0 INTRODUCTION

1.0 Introduction

The City of Portland Level / Layer Naming Guide presents computer aided drafting and design (CADD) Level / Layer names and guidelines adopted by Chief Engineers of the Bureau of Environmental Services, Bureau of Water Works and Office of Transportation. This Guide is intended to aid the development and completion of all architectural, engineering and construction (AEC) plans necessary to implement City Capital Improvement Programs (CIP). Sewer construction, storm water conveyance and treatment, potable water maintenance, and roadway improvements are typical public works projects included within the CIP of the Bureau of Environmental Services, Bureau of Water Works, and Office of Transportation.

The CADD Level / Layer names and other information presented in this guidebook were developed to provide a uniform, coordinated and economical process for application of CADD techniques. Included in this guide are general procedures and a detailed naming scheme for the completion of EXISTING base map CADD Drawings.

Typically a City Bureau assigns a Project Manager to Each CIP project. The Project Manager will ensure that all necessary drawings are completed in compliance with this guide. Although this document is self explanatory, we request that you contact the assigned Project Manager at the beginning of each project to discuss any concerns and technical or coordination issues. An early consultation may save many costly changes later in the process.

Computer Aided Design (CAD) systems are used extensively to produce engineered plans and other project documents. The CAD system is an integral part of the project process from project planning, to design, through construction, and closeout. CAD files are often shared and transferred between and within Bureaus, consultants, and others. Consistent applications and uniformity of CAD files used to produce engineered plans, contract documents and other products can greatly enhance quality and productivity. This will be achieved through the procedures and conventions presented in this guidebook.

One of the most used CAD files in AEC plans is the base map that shows existing conditions. This can be compiled from a GIS system, sketched in from as-built construction plans, traced from an overhead photo, or field mapped by a survey crew. Existing Conditions show up on roadway improvement plans, signal and street lighting plans, sewer plans, water plans, landscape, traffic, bridge, and demolition plans. The same file may be used on multiple projects by more than one City Bureau. Often a single base map is used by the three Bureaus on one project.

1.1 Background

Presently, the Bureau of Environmental Services, Office of Transportation and Bureau of Water Works each have their own set of CADD symbolization. Bureau of Environmental Services uses AutoCAD while Bureau of Water Works and Office of Transportation use MicroStation. The MicroStation CAD platform prior to Version 8 format did not support descriptive level names. The BES CADD Standards Manual 2nd edition followed an abbreviated layer naming scheme. This guide is intended to move the three bureaus in the same direction and provide a single source CAD documentation for those working with the city.

As the name of this guidebook implies it is not yet a CADD standards Manual for all three bureaus. The goal is to document common Level / Layer Names that have been agreed upon by the three bureaus. Only main existing base map items are covered.

The MicroStation CAD platform uses the term “Levels”, while AutoCAD uses the term “Layers”. For the purpose of this book both terms can be interchanged as they represent the same concept.

1.2 Descriptive Layer / Level Naming Guidelines

- Levels for Existing Items are prefixed with “E_”
- Levels for General Items are prefixed with “G_”
- Levels for Proposed Items are prefixed with “P_”
- A selection of level names has been agreed upon by three bureaus. The selection is made of items commonly found of topographic maps Hydrants, Trees, Signs, Buildings, Manholes, Sidewalks, etc.
- After the prefix level names are grouped.
- Each group has a level for text

SECTION 2.0 EXISTING ITEMS

2.1 Boundary

Level Name for Existing Features	Comments / Description
E_Boundary_City	
E_Boundary_Drainage	
E_Boundary_Soil	
E_Boundary_Watershed	
E_Boundary_Zoning	
E_Boundary_OTHER	Rename this layer to reflect needed Boundary, Examples: E_Boundary_School_District E_Boundary_Zip_Code E_Boundary_County_Line E_Boundary_Precinct
E_Boundary_Text	

2.2 Railroad

Level Name for Existing Features	Comments / Description
E_Rail_Track	
E_Rail_Signal	
E_Rail_Switch	
E_Rail_Burried	
E_Rail_Text	

2.3 Roadway

Level Name for Existing Features	Comments / Description
E_Road_Bike_Rack_Bench	
E_Road_Control_Line	
E_Road_Curb_Back	Curb Top Back
E_Road_Curb_Extruded	Example: Curb Bumper in Park Lot (Top Only)
E_Road_Driveway-Ramp	
E_Road_Edge_Asphalt	
E_Road_Edge_Concrete	
E_Road_Gravel	
E_Road_Edge_OTHER	Rename this layer to reflect needed Edge. Examples: E_Road_Brick, E_Road_Rock E_Road_Bark, E_Road_Marble
E_Road_Guardrail	
E_Road_Gutter	Gutter Flow Line
E_Road_Horse_Ring	
E_Road_Mailbox	
E_Road_Material_Text	Material Label Examples: CONC, BRICK, MARBLE, BARK
E_Road_Parking_Meter	
E_Road_Post	
E_Road_Sidewalk	
E_Road_Sign	
E_Road_Street_Name	
E_Road_Striping	
E_Road_Text	Catch all for text in this group Example: a note for broken guardrail

2.4.1 Sewer Combination

Level Name for Existing Features	Comments / Description
E_Sewer_Combination_Main	
E_Sewer_Combination_Lateral	
E_Sewer_Combination_Manhole	
E_Sewer_Combination_Diversion_Manhole	
E_Sewer_Combination_Overflow_Manhole	
E_Sewer_Combination_Interceptor	
E_Sewer_Combination_General	
E_Sewer_Combination_Text	

2.4.2 Sewer Sanitary

Level Name for Existing Features	Comments / Description
E_Sewer_Sanitary_Main	
E_Sewer_Sanitary_Lateral	
E_Sewer_Sanitary_Manhole	
E_Sewer_Sanitary_Force_Main	
E_Sewer_Sanitary_Private	
E_Sewer_Sanitary_Cleanout	
E_Sewer_Sanitary_General	
E_Sewer_Sanitary_Text	

2.4.3 Sewer General

Level Name for Existing Features	Comments / Description
E_Sewer_General_Abandoned	
E_Sewer_General_Cespool	
E_Sewer_General_General	
E_Sewer_General_Lateral_Private	
E_Sewer_General_Line_Private	
E_Sewer_General_Manhole_Hansen_ID	
E_Sewer_General_Sample_Manhole	
E_Sewer_General_Septic_Tank	
E_Sewer_General_SLRT	Existing Sewer Level Remote Telemetry
E_Sewer_General_Text	

2.4.4 Sewer Storm

Level Name for Existing Features	Comments / Description
E_Sewer_Storm_Branch	
E_Sewer_Storm_Culvert	
E_Sewer_Storm_General	
E_Sewer_Storm_Inlet	
E_Sewer_Storm_Inlet_Lead	
E_Sewer_Storm_Lateral	
E_Sewer_Storm_Main	
E_Sewer_Storm_Manhole	
E_Sewer_Storm_Private	
E_Sewer_Storm_Strip_Drain	
E_Sewer_Storm_Sump	
E_Sewer_Storm_Text	
E_Sewer_Storm_Trash_Rack	

2.5 Structure

Level Name for Existing Features	Comments / Description
E_Structure_Building	
E_Structure_Shelter	
E_Structure_Wall	
E_Structure_Fence	
E_Structure_Bridge	
E_Structure_Stairs	
E_Structure_Swimming_Pool	
E_Structure_Building_Elev_Text	
E_Structure_Text	

2.6 Survey

Level Name for Existing Features	Comments / Description
E_Survey_Benchmark	
E_Survey_Borehole	
E_Survey_Control_Point	
E_Survey_Ease_Perm	
E_Survey_Ease_Temp	
E_Survey_Lot_Line	
E_Survey_Monitor_Point	
E_Survey_Monument	
E_Survey_Parcels	
E_Survey_Resolved_ROW	
E_Survey_ROW	
E_Survey_Text	
E_Survey_Text_Point_Number	

2.7 Topography

Level Name for Existing Features	Comments / Description
E_Topo_Contour_Depress	
E_Topo_Contour_Depress_Text	
E_Topo_Contour_Major	
E_Topo_Contour_Major_Text	
E_Topo_Contour_Minor	
E_Topo_Contour_Minor_Text	
E_Topo_Ditch	
E_Topo_Grade_Break	
E_Topo_Edge_Water	
E_Topo_Slope_Toe	
E_Topo_Slope_Top	
E_Topo_Spot_Elevation	
E_Topo_Swale	
E_Topo_Text	

2.8 Traffic

Level Name for Existing Features	Comments / Description
E_Traffic_Control_Box	
E_Traffic_Impact_Attenuator	
E_Traffic_J-Box	
E_Traffic_Ped_Pole	
E_Traffic_Signal_Loop_Wire	
E_Traffic_Signal_Pole_Base	
E_Traffic_Text	

2.9 Utility

Level Name for Existing Features	Comments / Description
E_Utility_CATV_UG	
E_Utility_Fiber_Optic_UG	
E_Utility_Gas_Jet_Fuel	
E_Utility_Gas_Meter	
E_Utility_Gas_Text	
E_Utility_Gas_UG	
E_Utility_Gas_Valve	
E_Utility_Gas_Vault	
E_Utility_Pole	
E_Utility_Power_Anchor	
E_Utility_Power_Box	
E_Utility_Power_Manhole	
E_Utility_Power_Meter	
E_Utility_Power_UG	
E_Utility_Power_Vault	
E_Utility_Steam	
E_Utility_Street_Light	
E_Utility_Telephone_Manhole	
E_Utility_Telephone_Pedestal	
E_Utility_Telephone_UG	
E_Utility_Text	
E_Utility_Transmission_Tower	
E_Utility_Wire_OH	

2.10 Vegetation

Level Name for Existing Features	Comments / Description
E_Vegetation_Brush	
E_Vegetation_Drip_Line	
E_Vegetation_Edge	
E_Vegetation_Text	
E_Vegetation_Tree	

2.11 Water

Level Name for Existing Features	Comments / Description
E_Water_Cathodic_Protection	
E_Water_Dimension	
E_Water_DM_Notes	
E_Water_Drainline	
E_Water_Drainline_Text	
E_Water_Edit	
E_Water_Fitting	
E_Water_Fountain	
E_Water_Hydrant	
E_Water_Irrigation_Box	
E_Water_Irrigation_Line	
E_Water_Irrigation_Sprinkler	
E_Water_Main	
E_Water_Manhole	
E_Water_Meter	
E_Water_Miscellaneous	
E_Water_Pressure_Boundary	
E_Water_Regulator	
E_Water_SCADA	
E_Water_Service	
E_Water_Service_Text	
E_Water_Stand_Pipe	
E_Water_Tank	
E_Water_Text	
E_Water_Valve	
E_Water_Vault	

SECTION 3.0 GENERAL ITEMS

3.1 Border

Level Name for General Items	Comments / Description
G_Border_Line_Heavy	
G_Border_Line_Light	
G_Border_Line_Medium	
G_Border_Logo	
G_Border_Project_Number	
G_Border_Sheet_Number	
G_Border_Status_Box	
G_Border_Text_Heavy	
G_Border_Text_Light	
G_Border_Text_Medium	
G_Border_Trim_Line	

3.2 Detail

Level Name for General Items	Comments / Description
G_Detail_Hatch_Concrete	
G_Detail_Hatch_Earth	
G_Detail_Hatch_Gravel	
G_Detail_Hatch_Heavy	
G_Detail_Hatch_Light	
G_Detail_Hatch_Pavement	
G_Detail_Lines_Heavy	
G_Detail_Lines_Light	
G_Detail_Lines_Medium	
G_Detail_Text_Heavy	
G_Detail_Text_Light	
G_Detail_Text_Medium	

3.3 Plan

Level Name for General Items	Comments / Description
G_Plan_Dimension	
G_Plan_Layout_Box	
G_Plan_Match_Line	
G_Plan_North_Arrow	
G_Plan_PE_Stamp	
G_Plan_Scale_Bar	
G_Plan_Text_Heavy	
G_Plan_Text_Light	
G_Plan_Text_Medium	

3.4 Profile

Level Name for General Items	Comments / Description
G_Profile_Box	
G_Profile_Existing_Ground	
G_Profile_Grid_Major	
G_Profile_Grid_Minor	
G_Profile_Label_Elevation	
G_Profile_Label_Station	
G_Profile_Match_Line	
G_Profile_Proposed_Ground	
G_Profile_Text_Heavy	
G_Profile_Text_Light	
G_Profile_Text_Medium	

SECITION 4.0 PROPOSED ITEMS

4.1 Boundary

Level Name for Proposed Features	Comments / Description
P_Boundary_City	
P_Boundary_Drainage	
P_Boundary_Soil	
P_Boundary_Watershed	
P_Boundary_Zoning	
P_Boundary_OTHER	Rename this layer to reflect needed Boundary, Examples: P_Boundary_School_District P_Boundary_Zip_Code P_Boundary_County_Line P_Boundary_Precinct
E_Boundary_Text	

4.2 Railroad

Level Name for Proposed Features	Comments / Description
P_Rail_Track	
P_Rail_Signal	
P_Rail_Switch	
P_Rail_Burried	
P_Rail_Text	

4.3 Roadway

Level Name for Proposed Features	Comments / Description
P_Road_Bike_Rack_Bench	
P_Road_Control_Line	
P_Road_Curb_Back	Curb Top Back
P_Road_Curb_Extruded	Example: Curb Bumper in Park Lot (Top Only)
P_Road_Driveway-Ramp	
P_Road_Edge_Asphalt	
P_Road_Edge_Concrete	
P_Road_Gravel	
P_Road_Edge_OTHER	Rename this layer to reflect needed Edge. Examples: P_Road_Brick, P_Road_Rock P_Road_Bark, P_Road_Marble
P_Road_Guardrail	
P_Road_Gutter	Gutter Flow Line
P_Road_Horse_Ring	
P_Road_Mailbox	
P_Road_Material_Text	Material Label Examples: CONC, BRICK, MARBLE, BARK
P_Road_Parking_Meter	
P_Road_Post	
P_Road_Sidewalk	
P_Road_Sign	
P_Road_Street_Name	
P_Road_Striping	
P_Road_Sawcut	
P_Road_Cut	**Catch Line**
P_Road_Fill	**Catch Line**
P_Road_Silt_Fence	
P_Road_Text	Catch all for text in this group Example: a note for broken guardrail

4.4.1 Sewer Combination

Level Name for Proposed Features	Comments / Description
P_Sewer_Combination_Main	
P_Sewer_Combination_Lateral	
P_Sewer_Combination_Manhole	
P_Sewer_Combination_Diversion_Manhole	
P_Sewer_Combination_Overflow_Manhole	
P_Sewer_Combination_Interceptor	
P_Sewer_Combination_General	
P_Sewer_Combination_Text	

4.4.2 Sewer Sanitary

Level Name for Proposed Features	Comments / Description
P_Sewer_Sanitary_Main	
P_Sewer_Sanitary_Lateral	
P_Sewer_Sanitary_Manhole	
P_Sewer_Sanitary_Force_Main	
P_Sewer_Sanitary_Private	
P_Sewer_Sanitary_Cleanout	
P_Sewer_Sanitary_General	
P_Sewer_Sanitary_Text	

4.4.3 Sewer General

Level Name for Proposed Features	Comments / Description
P_Sewer_General_Abandoned	
P_Sewer_General_Cespool	
P_Sewer_General_General	
P_Sewer_General_Lateral_Private	
P_Sewer_General_Line_Private	
P_Sewer_General_Manhole_Hansen_ID	
P_Sewer_General_Sample_Manhole	
P_Sewer_General_Septic_Tank	
P_Sewer_General_SLRT	Proposed Sewer Level Remote Telemetry
P_Sewer_General_Text	

4.4.4 Sewer Storm

Level Name for Proposed Features	Comments / Description
P_Sewer_Storm_Branch	
P_Sewer_Storm_Culvert	
P_Sewer_Storm_General	
P_Sewer_Storm_Inlet	
P_Sewer_Storm_Inlet_Lead	
P_Sewer_Storm_Lateral	
P_Sewer_Storm_Main	
P_Sewer_Storm_Manhole	
P_Sewer_Storm_Private	
P_Sewer_Storm_Strip_Drain	
P_Sewer_Storm_Sump	
P_Sewer_Storm_Text	
P_Sewer_Storm_Trash_Rack	

4.5 Structure

Level Name for Proposed Features	Comments / Description
P_Structure_Building	
P_Structure_Shelter	
P_Structure_Wall	
P_Structure_Fence	
P_Structure_Bridge	
P_Structure_Stairs	
P_Structure_Swimming_Pool	
P_Structure_Building_Elev_Text	
P_Structure_Text	

4.6 Survey

Level Name for Proposed Features	Comments / Description
P_Survey_Benchmark	
P_Survey_Borehole	
P_Survey_Control_Point	
P_Survey_Ease_Perm	
P_Survey_Ease_Temp	
P_Survey_Lot_Line	
P_Survey_Monitor_Point	
P_Survey_Monument	
P_Survey_Parcels	
P_Survey_Resolved_ROW	
P_Survey_ROW	
P_Survey_Text	
P_Survey_Text_Point_Number	

4.7 Topography

Level Name for Proposed Features	Comments / Description
P_Topo_Contour_Depress	
P_Topo_Contour_Depress_Text	
P_Topo_Contour_Major	
P_Topo_Contour_Major_Text	
P_Topo_Contour_Minor	
P_Topo_Contour_Minor_Text	
P_Topo_Ditch	
P_Topo_Grade_Break	
P_Topo_Edge_Water	
P_Topo_Slope_Toe	
P_Topo_Slope_Top	
P_Topo_Spot_Elevation	
P_Topo_Swale	
P_Topo_Text	

4.8 Traffic

Level Name for Proposed Features	Comments / Description
P_Traffic_Control_Box	
P_Traffic_Impact_Attenuator	
P_Traffic_J-Box	
P_Traffic_Ped_Pole	
P_Traffic_Signal_Loop_Wire	
P_Traffic_Signal_Pole_Base	
P_Traffic_Text	

4.9 Utility

Level Name for Proposed Features	Comments / Description
P_Utility_CATV_UG	
P_Utility_Fiber_Optic_UG	
P_Utility_Gas_Jet_Fuel	
P_Utility_Gas_Meter	
P_Utility_Gas_Text	
P_Utility_Gas_UG	
P_Utility_Gas_Valve	
P_Utility_Gas_Vault	
P_Utility_Pole	
P_Utility_Power_Anchor	
P_Utility_Power_Box	
P_Utility_Power_Manhole	
P_Utility_Power_Meter	
P_Utility_Power_UG	
P_Utility_Power_Vault	
P_Utility_Steam	
P_Utility_Street_Light	
P_Utility_Telephone_Manhole	
P_Utility_Telephone_Pedestal	
P_Utility_Telephone_UG	
P_Utility_Text	
P_Utility_Transmission_Tower	
P_Utility_Wire_OH	

4.10 Vegetation

Level Name for Proposed Features	Comments / Description
P_Vegetation_Brush	
P_Vegetation_Drip_Line	
P_Vegetation_Edge	
P_Vegetation_Text	
P_Vegetation_Tree	

4.11 Water

Level Name for Proposed Features	Comments / Description
P_Water_Cathodic_Protection	
P_Water_Dimension	
P_Water_DM_Notes	
P_Water_Drainline	
P_Water_Drainline_Text	
P_Water_Edit	
P_Water_Fitting	
P_Water_Fountain	
P_Water_Hydrant	
P_Water_Irrigation_Box	
P_Water_Irrigation_Line	
P_Water_Irrigation_Sprinkler	
P_Water_Main	
P_Water_Manhole	
P_Water_Meter	
P_Water_Miscellaneous	
P_Water_Pressure_Boundary	
P_Water_Regulator	
P_Water_SCADA	
P_Water_Service	
P_Water_Service_Text	
P_Water_Stand_Pipe	
P_Water_Tank	
P_Water_Text	
P_Water_Valve	
P_Water_Vault