PLAN PREPARATION GUIDE

The text and examples of the Plan Preparation Guide have been prepared for use by both engineers and technicians in the preparation of project plans for the County of San Diego, Department of Public Works, Engineering Services Division.

To ensure that you have the latest Department of Public Works Civil 3D Design Standards and Plan Preparation Guide visit: http://www.sdcounty.ca.gov/dpw/standards/standards.html
1. INSTRUCTION


2. TYPICAL SHEET INDEX

THE INDEX OF SHEETS SHALL LIST ALL SHEETS CONTAINED IN THE PROJECT PLANS. THE SHEET NAME SHOWN ON THE INDEX OF SHEETS SHALL MATCH THE NAME SHOWN ON THE INDIVIDUAL SHEET. A TYPICAL SET OF PROJECT PLANS MAY INCLUDE THE FOLLOWING:

ROAD PROJECTS

INDEX OF SHEETS

TITLE SHEET
GENERAL NOTES AND REFERENCES
PROJECT IMPACT AREAS (PIA) MAP
TYPICAL SECTIONS
PLAN AND PROFILE SHEETS
DRIVEWAY PLAN AND PROFILE SHEETS
CURB RETURN PROFILES
DRAINAGE PLAN AND PROFILE SHEETS
DRAINAGE DETAIL SHEETS
RETAINING WALL PLAN AND PROFILE SHEETS
RETAINING WALL DETAILS
TRAFFIC SIGNAL PLANS
TRAFFIC CONTROL PLAN
DETOUR PLAN
STAGE CONSTRUCTION PLAN
WATER POLLUTION CONTROL PLAN

BRIDGE PROJECTS

INDEX OF SHEETS

CIVIL SHEETS
TITLE SHEET
GENERAL NOTES AND REFERENCES
PROJECT IMPACT AREAS (PIA) MAP
APPROACH ROAD PLAN AND PROFILE SHEETS
CHANNEL GRADING PLAN
SIGNING AND STRIPING PLAN
TRAFFIC CONTROL PLANS
STAGE CONSTRUCTION PLANS
DETOUR ROAD PLAN AND PROFILE SHEETS
WATER POLLUTION CONTROL PLAN
BRIDGE PLANS
GENERAL PLAN
DECK CONTOURS
FOUNDATION PLAN
ABUTMENTS
WINGWALLS
BEAMS
TYPICAL SECTION
ORDER LAYOUT
ORDER REINFORCEMENT
PRESTRESSING DETAILS
ROCK SLOPE PROTECTION PLAN
LOG OF TEST BORING

CHECKLIST

- VICINITY MAP (PROJECT SITE) WITH LIMITS OF IMPROVEMENT INDICATED
- CALIFORNIA COORDINATES, NAD 27 (COORDINATES OF THE LOWER LEFT CORNER OF THE STANDARD 200 SCALE COUNTY TOPOGRAPHIC SHEET ON WHICH THE PROJECT BEGINS)
- INDEX OF SHEETS
- PROJECT LOCATION (ON COUNTY MAP)
- LENGTH OF PROJECT
- WORK AUTHORIZATION NUMBER
- ROAD SURVEY NUMBER
- COMMUNITY NAME
- UTILITY ALERT NOTE
- COUNTY SIGNATURE BLOCK
COUNTY OF SAN DIEGO, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

PLANS FOR CONSTRUCTION OF

TITLE - LINE 1
TITLE - LINE 2

In the Vicinity of:
Net Length:

COVER SHEET
IS SUPPLIED READY TO BE XREFED INTO THE TITLESHEET
(IN PAPER SPACE)
TEXT HEIGHTS AND LINE WEIGHTS ARE NOT TO BE MODIFIED
INCLUDE ONLY THE INFORMATION SHOWN HEREIN
DO NOT ADD ADDITIONAL INFORMATION
DO NOT REARRANGE INFORMATION

"REVIEWED BY" INFORMATION
SHEET 1 ONLY

"GENERAL NOTES" TO REMAIN AS SHOWN
DO NOT EDIT

UTILITY ALERT NOTE:
ATTENTION IS DRAWN TO THE POSSIBLE EXISTENCE OF UNDERGROUND UTILITY FACILITIES NOT SHOWN OR IN
A LOCATION DIFFERENT FROM THAT SHOWN ON THE TITLESHEET OR IN THE GENERAL DRAWINGS.
THE CONTRACTOR SHALL TAKE STEPS TO LOCATE THE EXACT LOCATION OF ALL UNDERGROUND FACILITIES PRIOR
TO BEGIN WORK AND SHALL NOTIFY THE COUNTY OF THE EXACT LOCATION OF ALL UNDERGROUND FACILITIES
MOTION BEFORE EXCAVATING. THE CONTRACTOR SHALL NOTIFY THE LOCATION OF ANY UNDERGROUND FACILITIES
EXPLORED TO THE COUNTY IN WRITING WITHIN FORTY-EIGHT (48) HOURS OF EXCAVATION.
THE CONTRACTOR MUST ALSO INDIVIDUALLY CONTACT OPERATORS OF GAS, WATER, AND OTHER UTILITY FACILITIES
AND NOT DISTURB OR TAMPER WITH UNDERGROUND UTILITY FACILITIES.

COUNTY SIGNATURE BLOCK, SHEET 1 ONLY
CHECK FOR CORRECT APPROVAL NAME

TYPICAL SAN DIEGO COUNTY ROAD
In the Vicinity of

TITLE SHEET
CROSS SECTION

CHECKLIST

☐ SCALE — OR LABEL AS NO SCALE
☐ LAYOUT LINE — ROAD SURVEY OR CONSTRUCTION CENTERLINE
☐ CROSS SLOPE (PERCENT)
☐ ROADWAY STRUCTURAL SECTION
☐ AC BIKES (WITH TYPE IDENTIFICATION)
☐ CURB AND GUTTER (WITH TYPE IDENTIFICATION)
☐ RIGHT OF WAY STATIONING LIMITS
☐ BELOW EACH STATION, SMALLEST STATION AT TOP OF SHEET
☐ PERTINENT EXISTING FEATURES
☐ PROFILE GUIDE POINT, WIDTHS OF PAVEMENT SHOULDERS, MEDIANS, SIDEWALKS, DITCHES IN FEET, NOT INCHES
☐ SAW CUT LINE
☐ CUT/FULL SLOPES (CATCH POINT, SLOPE RATIO)
PLAN INSTRUCTIONS

ONLY THOSE EXISTING TOPOGRAPHIC FEATURES WHICH AFFECT CONSTRUCTION AND WHICH ARE ESSENTIAL FOR FIELD ORIENTATION OF THE PLANS SHALL BE INCLUDED (AS AN REFERENCE). IN URBAN AREAS, CONTOURS GENERALLY NEED NOT BE SHOWN.

SHOW AND IDENTIFY CONTROL LINE (ROAD SURVEY, CONSTRUCTION CENTERLINE ETC) WITH ALL SURVEY CONTROL STATIONING, STATION EQUATIONS, TANGENT DISTANCES AND Bearings AND CURVE STATIONS RADIUS, LENGTH AND DELTA, BEGIN AND END CURVE POINTS, ADD STREET NAME LABEL.

SHOW PROPOSED: SAW CUT LINES EDGE OF PAVEMENT (OR TOP OF CURB), SIDEWALK EDGES (FRONT AND BACK OF WALK), HINGE POINT, TOP AND TOE OF SLOPE, SLOPE ARROWS (DESIGNATING CUT OR FILL) ALL DRAINAGE STRUCTURES, SURVEY MONUMENTS TO BE SET, FENCES, GUARD RAILING, BARRIERS AND ALL OTHER FACILITIES TO BE CONSTRUCTED. SHOW ALL EXISTING FEATURES TO BE REMOVED (IE TREES) OR RELOCATED (FENCES, ETC) SHOW ALL DRIVEWAYS WITH CENTERLINE STATIONING. SOLID LINES SHALL BE USED FOR PROPOSED CONSTRUCTION ITEMS (REFER TO "DPW CAD STANDARDS").

INDICATE WORK TO BE PERFORMED

USE PHRASES SIMILAR TO "ABANDON" OR "REMOVE", "JOIN/MATCH EXIST", "PROTECT IN PLACE", "RESET", "RELOCATE", "RECONSTRUCT".

"CONSTRUCT", "PLACE", ETC

INCLUDE ALL NECESSARY DIMENSIONS, STATIONS AND OFFSETS

TOE OF AND TOP OF CUTS (EXCEPT WHERE GRADING IS MINIMAL.

PLAN CHECKLIST

- SCALES (OR LABELED NOT TO SCALE)
- CONTROL LINE (ROAD SURVEY, CONSTRUCTION CENTERLINE, ETC.)
- STANDARD NORTH ARROW
- UNDERGROUND UTILITIES (SEWER, WATER, GAS, TELEPHONE ETC)
- UTILITY POLES
- MATCH LINES
- BEARINGS
- BENCH MARKS
- RIGHT OF WAY
- ROADWAY WIDTHS
- STANDARD LEGEND (SHOWN ON EACH PLAN SHEET)
- DRIVEWAYS (STATION, WIDTH, SURFACING DESIGN STANDARD)
- SURVEY MONUMENTS (WITH COORDINATES)
- PEDESTRIAN RAMPS
- EXISTING FEATURES (SHADDED LINES, DASHED LINES)

PROFILE INSTRUCTIONS

ON COMBINED PLAN AND PROFILE SHEETS, THE PROFILE STATIONING (IN WHOLE STATIONS) SHALL LINE UP WITH STATIONING SHOWN BELOW THE PROFILE GRID.

PROFILE SHOULD DISPLAY VERTICAL CURVE LENGTHS, TANGENT GRADIENTS PV, STATION AND INTERSECTION ELEVATION, GRADIENTS OF REVERSE OR COMPOUND VERTICAL CURVATURE PROFILE OF ORIGINAL GROUND AND EXTENDING BEYOND IMPROVEMENTS (50 FT. MIN.). ELEVATIONS AND STATIONS BVC'S, EVC'S, GRADE BREAKS, PRVC'S, PCVC'S, EQUATIONS, PAYING NOTICES, BROKEN PROFILES FOR DATUM CHANGES AND EACH EDGE OF THE SHEET ON PROFILE GRID.

NOTE THAT ROADS IMPROVED WITH PCC CURB AND GUTTER SHALL BE DISPLAYED WITH PROFILES FOR TOP OF CURB (TC) WHEREAS ROADS WITHOUT PCC CURB AND GUTTER SHALL INCLUDE A SUPERELEVATION DIAGRAM WITH CROSS SLOPES TO EDGE OF PAVEMENT.

PROFILE CHECKLIST

- ELEVATIONS LABELED AT BOTH EDGES OF SHEET
- PROFILE LINES WITH LABEL AND GRADE (IN %)
- SUPERELEVATION DIAGRAM (SHOWN DIRECTLY ABOVE THE CORRESPONDING PROFILE WHERE SUFFICIENT SPACE IS AVAILABLE)
- ORIGINAL GROUND LINES WITH LABEL
- ELEVATION AT STATIONS (SHOWN AT BVC, EVC, GB, PRVC AND PCVC)
- UTILITY CROSSINGS
- EQUATIONS

SUPERELEVATION DIAGRAM INSTRUCTIONS

SUPERELEVATION DIAGRAMS SHALL BE LOCATED ABOVE THE PROFILE ALIGNMENT AND BE ALIGNED WITH STATIONING SHOWN BELOW PROFILE GRID. SUPERELEVATION IN PERCENT, AXIS OF ROTATION (0% LINE) AND CURVE POINTS. VERTICAL LINES SHOULD INDICATE THE LOCATION OF ALL HORIZONTAL CURVES BVC'S AND EVC'S.

CERTAIN COMBINATIONS OF PROFILE GRADE LINE, VERTICAL CURVES, SUPERELEVATION TRANSITIONS AND VARIABLE PAVEMENT WIDTHS MAY PRODUCE UNDESIRABLE PAVEMENT EDGE PROFILES. WHEN THESE COMBINATIONS OCCUR, IT IS ESSENTIAL TO PLOT EDGE OF PAVEMENT PROFILES AND GRAPHICALLY ADJUST BUMPS AND DRAINAGE POCKETS. THESE SHOULD BE DRAWN TO AN EXAGGERATED VERTICAL SCALE AND PLOTTED SEPARATE FROM THE PROJECT PLANS AND SUBMITTED TO THE RESIDENT ENGINEER AND FIELD SURVEYS FOR USE IN STAKING.
DRIVEWAY AND CURB RETURN

- SCALES (HORIZONTAL AND VERTICAL)
- ORIGINAL GROUND
- SLOPE (IN %)
- TYPE, CLASS AND THICKNESS OF PAVEMENT AND BASE
- STATIONING BELOW EACH SECTION, SMALLEST STATION AT TOP OF SHEET
STORM DRAIN PLAN AND PROFILE

PLAN INSTRUCTIONS
STORM DRAIN PLAN AND PROFILE SHEETS ARE PREPARED ON DUPLICATE SKELETONS OF THE BASE PLAN SHEETS. SEPARATE PLANS IF REQUIRED.

PROFILE INSTRUCTIONS
WHERE STORM DRAIN FACILITIES ARE TO BE INSTALLED OR CONSTRUCTED, STORM DRAIN PROFILES SHALL BE PREPARED FOR INCLUSION IN THE PLANS. EACH PROFILE OF EACH PROPOSED STORM DRAIN SYSTEM SHALL BE PLOTTED ON THE STORM DRAIN PLAN AND PROFILE SHEET. EACH STORM DRAIN PLAN AND PROFILE SHEET SHALL CONTAIN THE FOLLOWING DATA FOR EACH STORM DRAIN SYSTEM:

- TYPE, SIZE, LENGTH AND LOCATION OF CULVERTS
- CULVERT APPURTEYNES (INCLUDING, BUT NOT LIMITED TO HEADWALLS, WINGWALLS, DRAINAGE INLETS, FLARED END SECTIONS, INLET AND OUTLET STRUCTURES) SHALL BE SHOWN AND LABELED.
- ORIGINAL GROUND AND FINISHED GRADE PROFILES
- ALL FLOW LINE ELEVATIONS
- ALL UNDERGROUND UTILITY CROSSINGS
- SLOPE OF THE CULVERT SHOWN IN PERCENT

NOTE: TO ELEVATIONS SHALL BE SHOWN FOR ALL CURB INLET/OUTLETS IN PROFILE VIEW. FOR ROADS WITHOUT CURB AND GUTTER, SHOW LENGTH OF TRANSITION FOR AC DIKES THAT CONNECT TO THE CURB INLET/OUTLET.
RETAINING WALL PLAN AND PROFILE

INSTRUCTIONS

STANDARD PLANS AND STANDARD DRAWINGS ARE AVAILABLE FOR A VARIETY OF RETAINING WALLS. LOADING AND FOUNDATION REQUIREMENTS ARE OUTLINED ON THE STANDARD PLANS AND STANDARD DRAWINGS. FOR SITES WITH REQUIREMENTS THAT ARE NOT COVERED BY THE STANDARD PLANS OR STANDARD DRAWINGS, A SPECIAL DESIGN IS REQUIRED.

A FOUNDATION INVESTIGATION SHOULD BE MADE FOR ALL LOCATIONS AT WHICH A RETAINING WALL IS BEING CONSIDERED. THE DEPARTMENT OF PUBLIC WORKS MATERIALS TESTING LAB TYPICALLY MAKES FOUNDATION INVESTIGATIONS.

RETAINING WALLS SHOULD ALWAYS HAVE THEIR OWN STATIONING. THE BEGINNING AND END OF THE WALLS AND CRITICAL ANGLE POINTS WILL NEED STATION EQUATIONS TO TIE BACK INTO THE ROADWAY CONTROL LINE.

BEGIN WALL # 1
1+00 WALL # 1 =
45+50 @ 40' RT SS XX

RETAINING WALLS SHOULD ALWAYS REFERENCE USE THE LAYOUT LINE AS THE OFFSET CONTROL. THE RETAINING WALL LAYOUT LINE (LOL) SHALL BE CLEARLY SHOWN ON THE PLAN AND IN A RETAINING WALL TYPICAL SECTION. ALL STATION EQUATIONS AND OFFSETS SHALL BE WITH RESPECT TO THE WALL L.O.L. THE LAYOUT LINE IS TYPICALLY THE FACE OF THE WALL. ALL DATA TABLES AND OFFSETS SHOULD BE REFERENCED TO THIS LAYOUT LINE.

THE RETAINING WALL PLANS SHOULD INCLUDE A PLAN VIEW, A PROFILE VIEW AND A TYPICAL SECTION. THE FOLLOWING SHOULD BE SHOWN ON EACH VIEW:


THE PROFILE VIEW SHOULD SHOW AND LABEL: TOP OF WALL ELEVATION, TOP OF FOOTING ELEVATION, FINISH GRADE ELEVATIONS ALONG FACE AND BACK OF WALL AND ORIGINAL GROUND AT THE WALL LAYOUT LINE. STATION EQUATIONS NEED TO BE LABELED FOR THE BEGINNING AND END OF WALLS. THE TYPICAL SECTION SHOULD SHOW AND LABEL THE SAME ITEMS AS THE PROFILE VIEW.

THERE MAY BE A NEED TO SHOW THE JOINT LOCATIONS IN YOUR PROFILE VIEW. THE MINIMUM SPACING FOR THESE ARE TYPICALLY CALLED OUT ON THE STANDARD PLANS AND THE STANDARD DRAWINGS. KEEP THIS IN MIND WHEN LABELING YOUR PROFILE VIEW, AS LABELS MAY NEED TO BE SHOWN AT THE MINIMUM DISTANCES.

STORM DRAIN PLAN AND PROFILE SHEETS ARE PREPARED ON DUPLICATE SKELETONS OF THE BASE PLAN SHEETS. SEPARATE PLANS IF REQUIRED.
TRAFFIC SIGNAL PLANS

CHECKLIST

- SCALE (OR Labeled NO SCALE)
- CONTROL LINE (ROAD SURVEY, CENTERLINE, ETC.)
- POLE AND EQUIPMENT SCHEDULE
- DETECTOR ASSIGNMENT SCHEDULE
- PHASE DIAGRAM
- TYPICAL LOOP SPACING
- PEDESTRIAN RAMPS
- CONDUCTOR SCHEDULE
- TYPICAL POLE LOCATION
- LEGENDS (STOP BAR, ARROWS, ETC.)
- STRIPING, LANE WIDTHS
- STANDARD NORTH ARROW
- TR NUMBER (ASSET TAG)
SIGNING AND STRIPING PLANS

CHECKLIST

☐ SHOW ALL EXISTING SIGNS WITH NOTE TO REMAIN, REMOVE, RELOCATE, SALVAGE, ETC
☐ IDENTIFY ALL NEW SIGNS TO BE INSTALLED
☐ IDENTIFY ALL NEW STRIPING, PAVEMENT MARKINGS AND MARKERS
☐ SHOW NORTH ARROW
☐ LABEL STREET NAMES
☐ DO NOT SHOW CONTOURS
TRAFFIC CONTROL PLAN

PLAN INSTRUCTIONS

THESE PLANS SHOW THE SEQUENCE OF OPERATION, WORK TO BE PERFORMED AND THE TRAVELED WAY TO BE USED FOR ALL MOVEMENTS OF TRAFFIC DURING EACH CONSTRUCTION SEQUENCE.

STAGE CONSTRUCTION, TRAFFIC CONTROL AND/OR DETOUR PLANS SHALL BE INCLUDED IN THE PROJECT PLANS WHEN DETOURING OR STAGING OF THE WORK IS NEEDED. WHERE SUFFICIENT INFORMATION TO CONSTRUCT DETOURS CANNOT BE SHOWN ON THE STAGE CONSTRUCTION AND TRAFFIC CONTROL PLANS, SEPARATE DETOUR PLANS SHALL BE PREPARED. STAGE CONSTRUCTION AND TRAFFIC CONTROL PLANS MAY BE PREPARED BY UTILIZING DUPLICATE SKELETONS OF THE BASE PLAN SHEETS. DETOURS TO BE CONSTRUCTED SHALL BE SHOWN IN A SEPARATE DETOUR PLAN AND PROFILE SHEET.

EACH STAGE SHOWN ON THE STAGE CONSTRUCTION PLAN SHALL SHOW:

- EXISTING ROADBEDS AND ROADBEDS COMPLETED IN PREVIOUS STAGE
- CONSTRUCTION TO BE PERFORMED IN THE STAGE SHOWN
- TRAFFIC DIRECTION AND NUMBER OF LANES AVAILABLE IN THE STAGE SHOWN

EXISTING ROAD OR DETOURS THAT HAVE BEEN REPLACED BY PERMANENT CONSTRUCTION IN PREVIOUS STAGES SHALL NOT BE SHOWN ON SUBSEQUENT STAGES.

ROADWAY CROSS SECTIONS SHALL BE PROVIDED FOR ALL STAGE CONSTRUCTION WHEN DIFFERENTIAL GRADES EXCEED ONE FOOT.

PLAN CHECKLIST

☐ SCALE (OR LABELED NO SCALE)
☐ STANDARD NORTH ARROW
☐ UNDERGROUND UTILITIES (SEWER, WATER, GAS, TELEPHONE)
☐ UTILITY POLES
☐ DETOUR CENTERLINE (STATIONS, EQUATIONS)
☐ BEARINGS
☐ RIGHT OF WAY WIDTHS
☐ DETOUR ROADWAY WIDTH
☐ DRIVEWAYS (STATION AND WIDTH)
☐ DRAINAGE PIPES
☐ DETOUR SIGNING
☐ TYPICAL SECTION

PROFILE CHECKLIST

☐ GRID
☐ GRADES
☐ ORIGINAL GROUND
☐ DRAINAGE PIPES
☐ UTILITY CROSSINGS
WATER POLLUTION CONTROL PLAN

PLAN INSTRUCTIONS

EVERY EFFORT MUST BE MAINTAINED TO CONTROL RUNOFF DURING THE CONSTRUCTION PHASE OF THE PROJECT. INCLUDE A PLAN VIEW DESCRIBING AN EROSION AND SEDIMENT CONTROL PLAN. THE DESIGN MUST DEMONSTRATE THAT RUNOFF WILL BE CONTROLLED DURING CONSTRUCTION AND AFTER COMPLETION.

PLAN CHECKLIST

☐ TEMPORARY BMP
☐ SCALE (OR LABELED) NO SCALE
☐ STANDARD NORTH ARROW
☐ EXISTING TOPOGRAPHY SCREENED AT 10 PERCENT
☐ PROPOSED TOPOGRAPHY SHOWING ONE FOOT CONTOUR LINES AND ELEVATION VALUES AT EVERY FIVE FOOT INCREMENTS
☐ TOP OF SLOPE/TOE OF SLOPE
☐ FILL SLOPE/CUT SLOPE
☐ DAYLIGHT LIMITS OF GRADING
☐ ROADWAY WIDTHS
☐ RIGHT OF WAY WIDTHS
☐ DRIVEWAYS
☐ EXISTING DRAINAGE FACILITIES WITH FLOW DIRECTION
☐ PROPOSED DRAINAGE FACILITIES WITH FLOW DIRECTION
☐ ENVIRONMENTAL SENSITIVE AREA
☐ STORM WATER DISCHARGE LOCATION
☐ EXISTING GRADED SWALE
☐ PROPOSED GRADED SWALE
☐ LEGEND OF BMP
☐ DESCRIPTION OF BMP
☐ DETAILS
☐ CROSS SECTION OF DETAILS

NOTE THAT ALL PERMANENT BMP FEATURES THAT REQUIRE FUTURE MAINTENANCE MUST BE SUMMARIZED ON SHEET 2, GENERAL NOTES AND REFERENCES.