

Engineering/CIP Plan Review Checklist

PROJECT NAME : _____

DATE REVIEWED : 30% - 60%- 90%- 99%- 100%-

INSTRUCTIONS : X = TASK COMPLETE ? = NEED MORE DETAILS N/A = NOT APPLICABLE F = TO BE COMPLETED WITH FUTURE PHASE

30%	60%	90%	99%	100%	DESCRIPTIONS	Comments
INTERNAL COORDINATION - TO BE COMPLETED BY CITY PM						
					Check City's 5-Yr Transit Plan for bus stops and include improvements, if within project limits	
					Check with IT for fiber conduit needs	
					Check the 5 Year Sidewalk Plan for conflict	
					Check Wastewater Master Plan for conflict	
					Check Transportation Master Plan for conflict	
					Check Water Master Plan for conflict	
					Check Drainage Master Plan for conflict	
					Check 5 Year Mill & Overlay Plan for conflict	
					Check CIP Plan for conflict	
					Check Electric Master Plan for conflicts	
					Check with SMEU for conflicts on maintenance projects	
EXTERNAL COORDINATION - TO BE COMPLETED BY DESIGN ENGINEER						
					Map Request Submitted to Charter	
					Map Request Submitted to Bluebonnet	
					Map Request Submitted to Grande	
					Map Request Submitted to CenturyLink	
					Map Request Submitted to American Tower	
					Map Request Submitted to Texas State	
					Map Request Submitted to ATT	
					Map Request Submitted to PEC	
					Map Request Submitted to Crystal Clear	
					Map Request Submitted to CenterPoint Energy	
					Map Request Submitted to other utilities in the project limits	
GIS QUALITY CONTROL CHECK						
					Submit Plans to COSM GIS Technician to perform QA/QC - <i>See GIS Submittal Checklist</i>	
COSM DESIGN MANUAL - MUST BE USED WHILE PREPARING DESIGNS						
					Water Distribution System Design Criteria Manual - 1/13/2020	
					Wastewater Collection System Design Criteria Technical Manual - Most Current Version	
					Lift Station - Preferred Products Manual	
					Stormwater Technical Manual - 6/1/2020	
					Transportation Design Criteria Manual - 12/18/2018	
GENERAL - CONSTRUCTION PLANS						
					Sheet shall be designed on 11"x 17"	
					Scale shall be 1"=40' (Horizontal) and 1"=10' (Vertical) on 11"x17"	
					North Arrow	
					Scale (graphic scale with descriptive text of scale)	
					Street names, if any part of a street is shown	
					Property Address, Owner Name & R-value shown for all parcels	
					Legend shown and includes all symbols	
					Design follows COSM design criteria	
					Engineer's opinion of probable construction cost	
					Proposed easements shown (temporary and permanent)	
					100-Year Floodplain Boundary	
					For aerial installations the plans clearly show and differentiate between existing poles and new poles	
					Location of the highway crossing clearly shown (if applicable)	
					Label all Abandoned Water, Wastewater, and Stormwater Utilities (Show Limits)	
					Match Marks - All Match Marks need to be match Roadway Match Mark location. On Utility Plans, show both Roadway Match Mark and Utility Match Mark	
					Right of Way Line	
					Limits of Construction	
					Construction specifications signed and sealed by a PE licensed in Texas	
					Construction plans signed and sealed by a PE licensed in Texas	
Existing utilities shown:						
					Water	
					Wastewater	
					Stormwater	
					Gas	
					Electric (overhead and buried)	
					Communications (overhead and buried)	
					Location and information of all SUE work (Show marker on plans)	
Easements - Show and label all existing, proposed, and temporary easements shown and labeled:						
					Minimum easement width is 20'. Needs to be wider for deeper mains.	
					Verify if you need any Temporary Workspace License Agreement (TWLA)	
					All construction within LOC or in the ROW or within an easement - verify easements with Acquisition Specialist	
TCEQ (If in recharge zone)						
					Edwards Aquifer Recharge, Transition, and/or Contributing Zone Boundaries (if applicable)	
					Edwards Aquifer Recharge features (if applicable)	
					Sensitive feature Protection Zone Boundaries (if applicable)	
					Water Quality and Buffer Zones per Ch.5 (will be Ch. 6 of Codes SMTX) (if applicable)	
					TCEQ Construction Notes (if applicable)	
					WPAP Permit	
					SCS Permit	
COVER PAGE						

30%	60%	90%	99%	100%	DESCRIPTIONS	Comments
					City of San Marcos Logo	
					Project Name, limits, length and description	
					Location map with the limits of the project clearly defined with major street or highway names/designations	
					Signature blocks for all relevant personnel	
					Names/Logos of each design firm responsible for plans	
					Design Engineers Seal	
					TDLR number (if required)	
					Index of all sheets (<i>or separate index sheet</i>)	
30%	60%	90%	99%	100%	GENERAL NOTES	
					CIP general Construction Notes. Most current from webpage.	
					Provide a sequence of Construction List (if there is no separate Phase Plan)	
30%	60%	90%	99%	100%	QUANTITY TABLE	
					Overall quantity sheet with breakdown by sheet (or bid quantities shown on each sheet)	
					Spec reference shown?	
30%	60%	90%	99%	100%	PROJECT LAYOUT & SURVEY	
					Survey control points shown in plan view?	
					COSM monuments shown?	
					Geotechnical Bores shown, if any where obtained?	
					Table of Northing, Easting and Elevation listed for each control point	
30%	60%	90%	99%	100%	TYPICAL SECTION	
					Dimensions shown from face of curb to face of curb to match transportation design manual	
					Existing and Proposed ROW/Easements shown?	
					Paving thickness \geq geotechnical recommendation.	
					Paving base shown extending 3' from back of curb to match detail?	
					Paving thickness at lip of gutter should match curb thickness. 6" typical.	
30%	60%	90%	99%	100%	TREE MITIGATION (IF REQUIRED OR SHOW ON E&S PLANS)	
					Existing Tree List. Indicate if saved or removed list. Show size and species.	
					Tree Table shall list: Tag Number, Species, Diameter, Removal/Protection/ within limits of construction.	
					Tree Mitigation List (trees proposed in landscape plans or E&S plans)	
30%	60%	90%	99%	100%	EROSION & SEDIMENTATION CONTROLS	
					Show tree protection/removal with details	
					Tree Removal List. Show size and species. (<i>if no tree mitigation section</i>)	
					Temporary fencing necessary to turn cattle if applicable called out along entire LOC	
					Temporary Sedimentation Ponds (per TCEQ permit) for disturbed drainage areas greater than 5 acres. See permit for exceptions.	
					Show existing and proposed storm structures	
					Existing contours and proposed flow arrows (1' Typical, 2' max)	
					TPDES Stormwater Pollution Prevention & EPIC Sheet - Use TXDOT template	
					Seeding with soil retention blankets or sod. Match existing where required (verify seeding with any easement agreement).	
					Sod is preferred for repairs in front of existing residential neighborhoods	
					Irrigation requirements specified for establishing grass	
30%	60%	90%	99%	100%	CONSTRUCTION PHASING (TRAFFIC CONTROL NARRATIVE)	
					Simple Plan - no section needed; shown with General Notes	
					Detailed Phasing needed - must coordinate with TCP	
30%	60%	90%	99%	100%	TRAFFIC CONTROL PLAN - DETAILED VERSION	
					Show typical section for each phase	
					Verify 10.5' minimum (11' preferred) width for all lanes	
					4' Pedestrian route accounted for?	
					If low profile concrete barriers (LPC) are used, need to include 1' contingency from LPC to edge of travel lane	
					Did you drive all detours to confirm they are acceptable? No one ways or road too narrow?	
					Overall key map required for each phase?	
					Detailed layout required for each phase?	
					Include COA or TxDOT details; as referred to in the TCP.	
30%	60%	90%	99%	100%	REMOVAL	
					Removal plan required?	
30%	60%	90%	99%	100%	ROADWAY	
					Call out non-standard curb limits on plans (Catch is standard)	
					If Mill and Overlay, must construct ADA compliant ramps	
					Location and Identification number clearly identified for all TxDOT highways	
					Horizontal layout points, bearings and distances, curve data	
					Roadway base shall be 3' behind back of curb. Verify quantities are correct.	
					Sidewalk and/or hike and bike trail locations and dimensions for proposed and existing curb, etc.	
					Verify intersections sight distance (horizontal and vertical) are compliant. Reference section 1.4 of TDM.	
					Bus stop shelters, if any, designed per Table 7-3 of TDM	
					Street design is compliant with Tables 1-1 to 1-5 of the TDM	
					Cross-slope shown as minimum of 1.5% or maximum of 3%. (2% Preferred)	
					Minimum curb return radius per Table 1-12 of TDM	
					PROFILE:	
					Existing & proposed centerline elevations	
					Existing right-of-way elevations and 10' - 30' past right-of-way, as required	
					All crosswalks cross slopes should be designed at 1.5%	
					Check placement of crown in road also catch or spill curbs and drainage area	
					Vertical curve data with appropriate K value per speed limit. Reference section 1.5.3 of TDM	
30%	60%	90%	99%	100%	GRADING PLANS FOR INTERSECTIONS	
					Intermediate top of curb elevations along street	
					Directional flow arrows - interior of lots	
					For valley gutters, identify the ADA path on the typical section if the path crosses the valley gutters	
					Show 1.5% ADA path along the cross-walk	
					Corner of lot elevations	
30%	60%	90%	99%	100%	DRIVEWAYS	
					Driveway table or P&P for all driveways on reconstruction projects. (P&P preferred for full depth reconstruction)	
					Minimum curb return radius per Table 5-1 & 5-2 of TDM	
					Spacing per Table 5-1 & 5-2 of TDM	

30%	60%	90%	99%	100%	DESCRIPTIONS	Comments
					Show retaining walls that intersect driveways. Does retaining wall need to extend up driveway?	
					Verify slope in profile meets requirements shown in standard details (433S-A-SM)	
					A copy of a TxDOT permit is provided for each proposed driveway on TxDOT roadway(s)	
30%	60%	90%	99%	100%	DRAINAGE	
					Hydrologic Calculations	
					Detailed calculations such as routing program computations should be documented in a drainage report ~ Show both 25 & 100-year storm events using Atlas 14 rainfall data Per Storm Water Technical Manual (STM) 3.2.1.6.3 ~Both "on-site" and "overall"/"downstream" calculations provided	
					Rational Method calcs shown on plan sheets ~Drainage Area, Runoff Coefficients, Impervious Cover, Time of Concentration, Rainfall Intensity, and Peak Runoff (flow) for each subbasin	
					SCS Method supporting calcs shown on plan sheets ~Drainage area, Weighted Curve Number computation, Impervious Cover, Time of Concentration, Flow Path, and Peak Runoff (flow) for each subbasin	
					Drainage Area Map	
					"Existing" Overall Drainage Area Map with existing drainage areas and topography shown with minimum 1' contours	
					"Proposed" Overall Drainage Area Map with proposed drainage areas and topography shown with minimum 1' contours	
					On-site Proposed Drainage Area Map for smaller drainage areas captured such as sub-areas to each inlet	
					Flow direction arrows, Time of Concentration lines and type segments, & flowplaths shown	
					Indicate points of analysis on Drainage Plans where flow leaves the site that include flow comparison tables, existing versus proposed	
					Show FEMA Floodway and Floodplain Boundaries (ref. FIRM panel No. and date and pending CLOMR or LOMR case numbers)	
					Show Water Quality and Buffer Zones per CoSM Land Development Code (LDC) Section 6.2.2	
					Show Ordinary High Water Mark in Waters of the US	
					Detention Basin, if required	
					Detention Basin Outlet Structure showing stage outflow elevations for 2, 10, 25, and 100-year storm events. Required internal rock baffle per section STM 3.3.5.6.	
					Detention Basin Inlet Structure (headwall/energy dissipaters)	
					Stage-storage-discharge relationships for detention facilities shown on table	
					Design Sheets	
					All structures and pipes labeled	
					For open channels ~ Show cross-section and label 100-year HGL & Freeboard	
					Curb/Grate Inlet sizing calculations per STM 3.3.3	
					Max. 500' between Junction boxes per STM 3.3.4.3	
					Area inlet preferred - do not use grate; need to specify raised 4-sided inlet. PS approval required for using grate inlet	
					Plan sheets showing proposed topography with 1' contour intervals tying to existing	
					Profile shown for all Storm Pipe:	
					Show Pipe size, Length and Slope	
					Show Material and specify including Class III or Class IV RCP	
					Manhole stations & top of rim elevation called out	
					Invert elevation called out; include direction and in/out at each callout.	
					Top of existing and proposed ground shown	
					Elevations shown on all grade breaks	
					Show 25 and 100-year HGL, flows, and velocities on storm sewer profile and tail water if applicable.	
					Open Channel ~ Show 100 year flows, velocity & hydraulic grade line	
					Are you trapping water on private property? Refer to cross-sections. Need open back inlets?	
					Headwall and energy dissipaters showing outflow velocity	
30%	60%	90%	99%	100%	STRUCTURAL	
					Structural plan required?	
30%	60%	90%	99%	100%	RETAINING WALLS	
					Retaining walls with top of wall and bottom of wall elevations	
					Verify footing does on conflict with utility crossing	
					Any special finishes on the wall; if so, special provision included?	
					Details for each retaining wall design included?	
					Control point for off-set indicated on the detail?	
					Pay limits indicated on detail?	
					If footing is used as sidewalk; did you clarify how payment will measured?	
30%	60%	90%	99%	100%	WATER MAIN	
					Existing utilities, all connections to, and crossings of existing utilities shown	
					Meter size, type, and location listed on the plans	
					If you are "relocating" meters & meter box, verify you have proper pay items. See Mods 504S.	
					Verify no existing meters are installed in the sidewalk; if so, add note requiring meter to relocated outside sidewalk.	
					Existing meter sizes labeled with irrigation or residential use (Irrigation meters require Backflow Preventer)	
					Lines shall be looped or an Automatic Flush Valve will be installed	
					Stations called out for Hydrants, Tee's, Valves, Crosses, Bends, etc. (angle of bends included)	
					Bold and label all proposed lines	
					Label all that are to be abandoned	
					Station equation given from street centerline with offset at Match Marks	
					If bores included, show stationing at each end and size of encasement	
					Air Release Valve on 16" or larger lines at all high points	
					Are drain valves needed on 12" or larger lines at all low points?	
					Field verify service size and type.	
					Water department to verify all valves are working. City PM to coordinate	
					Restrained Lengths - Call out all pipe mechanical restraints and provide calculations - required on water lines at all bends and intersections points in accordance with manufacturer recommendation (Ford Uniflange and EBBA Iron Megalugs). May show in profile or plan view.	
					Valves located in an open field need Valve Location Markers (detail included?)	
					All legs of the main at a tee or cross shall have a valve (excludes FH)	
					MUST use cut-in tee if connecting to line of equal size	
					Transmission lines needs a temporary sample port at least every 1000 ft.	
					Fire hydrants located on property line (between properties)	
					Fire Hydrant Spacing Verified: See Table 3 of Water Design Manual	
					300 feet for commercial	
					500 feet for residential	

30%	60%	90%	99%	100%	DESCRIPTIONS	Comments
					Electrical line drawings	
					Instrumentation & Control drawings	
30%	60%	90%	99%	100%	ELECTRIC - UNDERGROUND	
					Show existing and proposed pole placement	
					Show primary and secondary pull boxes, transformers	
					Plan and profile of duct bank	
					Duct Bank Detail with backfill shown	
30%	60%	90%	99%	100%	ELECTRIC - MECHANICAL	
					Mechanical Plan required?	
30%	60%	90%	99%	100%	ELECTRIC - LIGHTING	
					Photometric Plan	
					Show existing and proposed pole placement	
					Show pull boxes - no more than 360 degree for bends allowed between pull boxes	
					Typical section showing trench	
					Light fixture approved by SMEU	
30%	60%	90%	99%	100%	TRAFFIC SIGNALS	
					Ped crossing? If yes, APS required	
					Opticom required	
					Contractor must program signal	
					Provided timing and phasing plan	
					Need temporary signals?	
					If yes, provided timing and phasing plan	
					Use TXDOT Specs; not COSM. See Modifications TXDOT 680.	
30%	60%	90%	99%	100%	SIGNING & PAVEMENT MARKINGS	
					Make sure you include both Type 1 & Type 2 Striping; see the Modifications (871S)	
					Crosswalk striping matches detail?	
					Sign standard and signs per MUTCD	
					Do we need a detailed striping plan?	
30%	60%	90%	99%	100%	UTILITY LAYOUT	
					Utility layout required?	
					Color coded?	
					Label all utilities; proposed and existing.	
30%	60%	90%	99%	100%	LANDSCAPING	
					Irrigation system reviewed against irrigation checklist?	
					Irrigation system approved by Jan Klein and Devin Hussey?	
					Irrigation system approved by Parks?	
					Tree/Plans approved by Parks?	
					Do you have a service drop or will SMEU need to install one?	
					Plans clear on how power and water will be connected?	
					Are you including a 2 year maintenance requirement and pay items?	
30%	60%	90%	99%	100%	CROSS-SECTIONS	
					Every 50'?	
					At driveways? Unless you have details profiles	
					Utilities shown in cross-section	
					ROW/Easement Shown	
30%	60%	90%	99%	100%	DETAILS	
					All details included in plans; fill out checklist on COSM website under "Standard Details"	
					Edge Protection Required per detail 432S-1-SM?	
30%	60%	90%	99%	100%	BID ITEMS - COMMON MISSED ITEMS	Comments
					Curb & gutter vs. driveways - don't include C&G area in driveway; curb & gutter paid thru the dwy by LF as laydown. Review Detail 433S-A-SM	
					Included pay item for TV inspection of sanitary sewer? Pay Item TBD	
					Included pay item for TV inspection of storm drain? Pay Item No. 510-VIDEO - Video Inspection of Newly Installed Box Culverts and Storm Drain Pipe	
					Wet Connection pay item for all water tie ins? (510S)	
					Service paid by LF and connection by EA OR by Relay Long & Short? Check the Modifications (510S)	
					Which FH pay item was used? Check the Modifications (511S)	
					Asphalt/Concrete/Base quantities follow dimensions of appropriate trench repair detail	
					Bid items list proper thickness corresponding to trench repair detail.	
					If different thickness used; need to modify trench repair detail.	
30%	60%	90%	99%	100%	External Funded Project	Comments
					CAMPO PROJECTS	
					TXDOT Cover page	
					TXDOT Title Block	
					TXDOT Details (Use COSM details if there is no TXDOT Detail)	
					Pay Items - Use TXDOT Pay items (Use COSM pay items if there is no TXDOT pay item)	
30%	60%	90%	99%	100%	MISCELLANEOUS	
					Construction schedule estimate to justify the number of working days we award for construction. Specify Calendar Day or Working Days.	
					Mailboxes - placement updated to match COSM standard detail 432S-10-SM	
					Mailboxes (Alternative Detail if City Detail Wont Work) - See TXDOT details MB-14 and MB-15 on Maintenance webpage	