



ENGINEERING PLAN REVIEW REQUIREMENTS

Pre-Submittal Requirements:

The City of Venus must review and approve all new construction and reconstruction projects within the City limits, as well as the City's ETJ, prior to commencement of construction. The City will assist developers and design engineers to ensure that all public improvements for construction are designed to meet current City standards. Before Engineering plans are submitted to the City for review, the following steps should be taken.

1. **Schedule a Pre-Development Meeting** – A pre-development meeting is highly encouraged for all projects, particularly for developers who have not worked in the City of Venus before or who are working on a complex development. A pre-development meeting will be scheduled with representatives from all City departments and the design review team. Pre-development meetings can be scheduled by contacting Michael Boese at 972-366-3348 or mboese@venuspolice.org.
2. **Obtain Record Drawings** – The design engineer is responsible for obtaining and reviewing record drawings of all existing infrastructure. The design engineer shall verify information related to paving and underground utilities within or adjacent to the project. Verification can be done by visiting the subject property or by contacting the Public Works and Water/Sewer Department at 972-366-3435.
3. **Site Plan Submittal** – The Site Plan application must be submitted before engineering plans are submitted for review. The engineering plans may be submitted at the same time as the Site Plan application, but will not be approved until the Site Plan application has been approved.
4. **Obtain and Review Standard Design Documents** – The design engineer is responsible for obtaining and reviewing all City of Venus specifications, as well as all federal, state, regional and local project specific associated documents.
 - a. [City Standard Construction Details](#)
 - b. [Zoning Ordinance](#)
 - c. [Subdivision Ordinance](#)
 - d. [Drainage Ordinance](#)

Civil Engineering Plan Submittal and Review:

1. **Civil Engineering Plan Contents** – All civil engineering plans and related reports submitted for review and approval must be prepared under the direct supervision of a licensed Professional Engineer registered in the State of Texas and shall bear the seal of the Engineer of Record. All plans shall include minimum of the following sheets (in addition to the mandatory plan sheets):
 - a. Cover Sheet
 - b. Plat (recorded or pending version)
 - c. Site Plan (commercial only)
 - d. General Notes
 - e. City of Venus Construction Details

Should a construction project require the interruption of traffic on any existing roadway, a detailed traffic control plan shall be included in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

All work and materials shall be in accordance with the City of Venus's Construction Standards and



ENGINEERING PLAN REVIEW REQUIREMENTS

Specifications and the North Central Texas Council of Governments (NCTCOG) Public Works Construction Standards. Should a conflict be found between the publications, the City of Venus standards and specifications shall take precedence. In the event that the item is not covered by the City of Venus's standards, the most current version of the NCTCOG Public Works Construction Standards shall apply with concurring notification by the contractor to the City and Consulting Engineer for review and approval. Reference to any other standards in the project specifications shall be made to the latest version of that publication.

Every attempt by the design engineer shall be made to ensure that all civil engineering plans are complete and comprehensive.

2. Plan Submittals – One electronic pdf set of the civil engineering plans shall be submitted to the City for review and approval. The submittal shall contain all items listed in the Civil Engineering Plan Review Development Checklist, included as an Appendix to this document. If the item is not included, an explanation must be included in a cover letter accompanying the plans. Subsequent submittals will be required until all comments have been addressed.
3. Additional Submittal Requirements
 - a. Submit an electronic copy of any study and/or report completed in support of the project. These include, but are not limited to: Traffic Impact Analyses, Flood Studies, Geotechnical Reports, Utility Studies, etc.
 - b. If routing software is used to design any detention basin (i.e. HEC-HMS), provide the original files with the civil plan submittal
 - c. Note that if civil plans are submitted for review prior to site plan/plat approval, changes to the plans may be required as a result of site plan/plat approval conditions. If a site plan/plat has not been conditionally approved by the City, the City reserves the right to stop the review of the civil plans until that has occurred.
 - d. Easements by Separate Instrument (offsite easements) – All easements by separate instrument as necessary for the completion of all improvements shown in the construction drawings must be submitted to the City for review prior to filing with the County. All offsite easements must be executed prior to the release of a construction permit.
4. Civil Engineering Plan Review & Resubmittals – The City of Venus will review plans in the order they were received. Initial review time will be 10 business days. If the project is particularly complex or if the City has received an unusually large case load, additional review time may be needed. Applicant will be notified electronically via email when review is complete, with review comments attached.

Subsequent submittals shall include a complete set of drawings. Applicant shall provide written responses and/or explanations to any comments that need further clarification or are unable to be addressed. This can be done directly on a copy of the plans containing the City's comments, or via a



ENGINEERING PLAN REVIEW REQUIREMENTS

formal letter.

Communication with the City via email or phone is encouraged to help provide clarifications and address any questions throughout the review process.

5. Civil Engineering Plan Approval – Once all of the City’s comments have been addressed and approved, the applicant will be asked to submit a signature set to the City (two full size hard copies and one electronic copy). Applicant will also be responsible for making a sufficient number of copies of the plans for all necessary contractors, sub-contractors, construction staking surveyors and private consultants.

After Approval of Civil Engineering Plans:

1. Prior to Construction – A Pre-Construction meeting with the City is required before the construction commences. The applicant shall contact Michael Boese at 972-366-3348 or mboese@venuspolice.org to schedule the Pre-Construction meeting. Once a date has been set, the applicant is responsible for contacting all subcontractors and consultants to inform them of the meeting time and location. All required inspection fees will be due at the time of the pre-construction meeting. Applicant is encouraged to provide the City with a detailed breakdown of the public infrastructure construction costs prior to the meeting so that the City can determine the fees owed prior to the meeting.

All erosion control and tree preservation fencing shall be installed and approved prior to any site work commencing. Contractor shall notify the City 48 hours prior to any weekend work and 72 hours for work on a City holiday. Weekend and holiday work is not guaranteed and contingent on inspector’s availability.

2. Onsite during Construction – Each contractor or subcontractor must possess a copy of the approved Civil Engineering plans at the project site at all times. At least one copy of the SWPPP, the NOI, and TxDOT permits (if required) shall also be onsite at all times.
3. Revisions during Construction – All changes to the plans and specifications must be routed through the City of Venus. The design engineer shall provide a sealed drawing of the requested change for review. Work shall not commence on the revision until the revision has been approved by the City.
4. Requirements for Final Acceptance – When the project nears 95% completion, a Pre-Final walk through shall be scheduled by the applicant with the City inspector to review the project and discuss final acceptance requirements. Upon project completion, the applicant shall schedule a Final walk through for the public improvements with the City. Applicant must give the City 72 hour notice and is responsible for contacting all relevant non-City personnel.



ENGINEERING PLAN REVIEW REQUIREMENTS

5. Record Drawings – In order to receive final acceptance, the design engineer must submit final record drawings including revisions per comments made during the final walk through to the City of Venus Inspector for review and approval.



ENGINEERING PLAN REVIEW REQUIREMENTS

APPENDIX A: CIVIL ENGINEERING CHECKLIST



ENGINEERING PLAN REVIEW REQUIREMENTS

First Plan Submittal Requirements

- Submit one electronic plan set for review
- In addition to site specific civil sheets, the following sheets are required in all plan sets:
 - Cover Sheet
 - Plat (recorded or proposed version)
 - Approved “stamped” Site Plan
 - General Notes

Requirements for all Civil Plan Sheets

- Title block with engineering firm information, registration number, engineer’s seal, sheet title, and page numbers clearly shown
- A minimum of two benchmarks are required on all pertinent sheets
- North Arrow and scale clearly shown on each plan sheet
- Legend (relevant to each sheet) showing all special symbols, line types and hatch used
- Street names labeled on all existing, proposed, and future streets
- Lot & Block numbers and/or ownership info shown for all lots
- Caution notes shown when working next to any existing utilities (public and franchise)

Dimensional Control Plan (Non-residential projects)

- Dimensions for all buildings, pavement and hardscape areas (i.e. parking areas, driveways, fire lanes, turn lanes, sidewalks, radii, throat depths, etc.) measured to the nearest 0.0’
- Control points to structures (i.e. inlets, etc.) based on dimension from property corner or known feature (not from an arbitrary point parallel to property line)
- Verification of public right-of-way widths. Dimension each property corner adjacent to public right-of-way to a perpendicular point on opposite side right-of-way line (do not label “variable width” only)
- Dimension along right-of-way to nearest cross-street and/or driveway measured from edge of drive to edge of drive.

Tree Survey

- Property lines, right-of-way and easements shown and dimensioned
- All buildings, structures, and utilities (existing and proposed) shown
- FEMA and fully developed floodplains, NRCS lake tree preservation zone shown
- Show existing grading contours
- List in table format, the species and size of all trees at least 6” in caliper measured at 4.5’ trunk height from ground
- Show surveyed location of trees

Erosion Control Plan

- Existing and proposed contours clearly shown/labeled
- Existing and proposed storm lines and inlets shown
- List the total disturbed acreage including offsite and delineate limits of construction
- Sedimentation basin provided for disturbed basins 10 acres or greater
- FEMA 100-yr floodplain and Fully Developed 100-yr floodplain delineated
- Flow arrows for surface drainage shown
- Appropriate BMP’s used and identified
- Phasing of BMP’s with construction activities listed/described
- BMP details provided, should be per current NCTCOG/iSWM standards dated April 2010 or later
- Stockpile area and batch plant areas shown and labeled
- Areas to be sodded or seeded shown and specified with permanent perennial vegetation
- Areas of permanent erosion control (other than vegetation) clearly shown
- Proposed non-structural and structural post-construction (permanent) BMPs to address post construction run-off identified



ENGINEERING PLAN REVIEW REQUIREMENTS

- Wetlands delineated where applicable
- Description of long-term operation and maintenance of BMPs

Grading Plan

- Both onsite and offsite existing/proposed contours shown clearly labeled
- Date and name of firm who prepared geotechnical report with corresponding note stating: "Work shall be done in accordance with the Geotechnical Report by _____, dated _____."
- Drainage clarified by flow arrows, high points, sags, ridges, and valley gutters
- Show driveway locations for all lots adjacent to storm inlets
- Show drop grade beams and elevations as needed
- Positive overflow provided at all low points, easements dedicated as needed
- Finished pad and/or floor elevations shown
- Minimum finished floor elevations shown adjacent to floodplains, ponds, creeks/channels, etc.
- Clearly show all walls and label top/bottom elevations of wall at key locations
- FEMA 100-yr floodplain and Fully Developed 100-yr floodplain delineated easements (show both pre project Floodplain and post project Floodplain)
- Cross-sections and flow data for all swales and open channels provided
- Spot shots, including northings, eastings and elevations shown to ensure proper drainage and adequate ADA/TAS routing where applicable

Drainage Area Map

- Existing contours clearly shown for entire drainage basin, both onsite and offsite. Aerial topography or similar is acceptable for offsite areas with major contour labels shown
- Drainage areas and sub areas delineated and labeled
- Flow arrows for surface drainage shown
- Existing and proposed storm lines and open channels shown
- Inlet designation labels shown
- Detention pond shown and labeled
- Drainage easements shown and labeled
- Zoning indicated for all offsite areas and/or land use assumptions specified
- Rational Method Peak Runoff Rate Computation Table shown (Q=KCIA)
- Time of concentration and weighted runoff coefficient calculations shown as needed
- List the total site impervious area (ft² of all paving, roof areas, etc.) – Commercial Projects
- FEMA 100-yr floodplain and Fully Developed 100-yr floodplain delineated

Hydraulic Calculations

- Street Flow Computation Table provided for all public streets for 10-yr and 100-yr events
- Inlet Interception Computation Table provided for all public inlets for 10-yr and 100-yr events
- Pipe Hydraulics Computation Table provided for all public lines for 10-yr and 100-yr events

Detention Pond Design and Hydraulic Calculations

- Detention pond design calculations shown, method used specified
- Provide detention pond volume sizing calculations and/or computation table
- Provide stage-discharge table and/or curve information
- Provide weir and/or orifice sizing calculations for outfall structure
- Provide electronic copies of all hydraulic computations or data files (HMS, RAS, StormCAD, PondPack, etc.) on CD or digital media
- Existing and proposed contours shown and labeled.
- Cross-section of pond including side slopes, normal pool elevation (if applicable), show 100-yr WSE, 10-yr WSE, and 1-yr, 24 hour WSE
- Detail of pond outfall structure showing all elevations as necessary
- Trash rack (and detail) provided for smaller orifice openings
- Overflow spillway location and design information provided



ENGINEERING PLAN REVIEW REQUIREMENTS

- 100-yr floodplain(s) shown where applicable
- Show and label all existing/proposed utilities and easements
- Access/maintenance ramp provided (max slope 6:1)

Storm Drain Plan

Plan View

- Show and label all existing and proposed utilities
- Dimension location/spacing of utilities
- Label inlet type, inlet block-outs, size, paving station, and top of curb elevation at a minimum
- Label type and size of existing/proposed structures (i.e. headwalls, manholes/junction boxes)
- Label type, size and dimensions of all permanent outfall erosion protection.
- Show centerline stationing for pipe with PC & PT stations and curve data
- Label centerline stations for lateral connections, manhole & junction box locations, pipe size changes, headwalls, and future stub out connections
- 100-yr gutter flows and bypass shown at each inlet along public streets and firelanes
- FEMA 100-yr floodplain and Fully Developed 100-yr floodplain shown
- Provide applicable construction details for all drainage structures

Profile View

- Existing and proposed ground line at centerline of pipe shown and labeled correctly
- Show all hydraulic data including design flow, full flow capacity, friction slope, velocity, and velocity head. For partial flow conditions show design flow, full flow capacity, normal depth, normal velocity, and velocity head.
- Label station and flowline elevation information for all structures, crossings, laterals, etc.
- Label flowlines at every 50 foot station
- Indicate length, type/class, slope and size of all storm pipes
- Show and label 100-yr and/or 10-yr HGL, label HGL elevations at all junctions
- All utility crossings and parallel sewer lines shown in profile
- 100-yr WSE shown at outfall for ponds, creeks and channels
- Open channels shall also include a typical cross section with all hydraulic data

Water Plan

Plan View

- Show and label all existing and proposed utilities
- Show and label water line leading to fire sprinkler systems as "fire line" where applicable
- Label size, type and pressure class for all proposed water mains
- Show location for all water services and meters
- Show and label all easements
- Dimension location of all mains, services, meters, and spacing from other utilities
- Curve data and stationing provided as necessary
- Show and label all fire hydrants, valves, fittings, FDC locations, and back-flow prevention
- Label valves with paving station near barrier free ramps or ADA routes

Profile View

- Profile all water mains 12" and larger, or where a potential conflict may arise
- Existing and proposed ground line at centerline of pipe shown and labeled correctly
- Label station and flowline elevations at 100' intervals, and for all fittings, laterals, and crossings
- Indicate length, type/class, slope and size of all lines
- All utility crossings and parallel sewer/storm lines shown in profile
- Indicate length, type and size of encasement as needed



ENGINEERING PLAN REVIEW REQUIREMENTS

Sanitary Sewer Plan

Plan View

- Show and label all existing and proposed utilities
- Dimension location of all mains from other utilities
- Label line name, size, thickness, and type of all proposed sanitary sewer lines
- Stub-outs labeled with size, slope, length, and flowline elevations (if not profiled)
- Show and label all easements
- Show centerline stationing for sanitary sewer
- Show and label all manholes with rim elevations, as well as cleanouts
- Indicate type and size of encasement where needed
- Show flow direction arrows for sewer main
- Topographic contours shown to delineate sewer basins

Profile View

- Existing and proposed ground line at centerline of pipe shown and labeled
- Label station and flowline elevation information for all manholes, cleanouts, crossings, laterals
- Label flowlines at every 50 foot station
- Manhole inflow and outflow elevations to be designed with a minimum of 0.1' drop
- Indicate the type and diameter for all manholes
- Indicate length, type/class, slope and size of all sanitary sewer pipe between manholes
- All utility crossings and parallel storm lines shown in profile
- Indicate length, type and size of encasement as needed

Paving Plan

Plan View

- For all new streets, a site specific geotechnical evaluation and pavement design submitted with plans
- Typical Pavement Section details shown (firelane, parking areas, streets, subgrade, etc.)
- For streets, centerline stationing at every 100', PC's, PT's, and curve data labeled
- Intersection, driveway and island curb radii labeled
- All sidewalks and barrier free ramps shown, labeled and dimensioned
- Existing, proposed, future streets and drives shown and labeled
- Right-of-way corner clips and sight visibility easements provided
- Storm inlets identified with paving stations and top of curb elevations at center of inlet.
- Drainage clarified by flow arrows at crests, sags, ridges, intersections, and valley gutters
- Show driveway locations for all lots adjacent to storm inlets and intersections

Profile View

- Existing ground line for left, right, and center of right-of-way shown
- Proposed top of curb line shown for all public streets, proposed invert line shown for all alleys
- Show right and left top of curbs at intersections where split grade occurs
- Top of curb/pavement elevations labeled at every 50 foot stations
- Vertical Curve stationing and elevations including PVC, PVI, PVT, crest/sag location, curve length, algebraic grade difference, and "K" values shown at a minimum
- Street grades shown to the nearest 0.01'.
- Show "compacted fill" callout/note for all areas of fill

Sidewalk Layout Plan (Residential Subdivisions)

Provide a single scalable sheet showing all sidewalks to be installed with the development

- Distinguish between developer installed sidewalks and homebuilder installed sidewalks.
- Show actual layout locations and sizes of all proposed sidewalks and barrier free ramps



ENGINEERING PLAN REVIEW REQUIREMENTS

- Specify the Type (based on City or current TxDOT PED detail) of Barrier Free Ramps used at all locations
- Confirm sidewalk layout and grades (show in grading plan) meet ADA and TDLR standards

Street Light and Signage Plan (Arterial Streets and Residential Subdivisions)

Show all street light locations, consideration should be given to electrical layout from utility company

- Show all stop signs and traffic related signage locations
- Street lights located on opposite side of street from Stop Sign
- Verification of fire hydrant placement relative to street lights and stop signs (3' clear zone)
- If symbols used in plan, include appropriate legend for clarification

Traffic Control Plan (Site specific)

Design site specific traffic control plan, TxDOT standard alone is inadequate

- Indicate posted speed limit or design speed
- Show all sign designation, sign graphic, and sign size
- Show channelization device type, locations, and spacing
- Show all traffic barricades and indicate type
- Show all detour routes and detour signage
- Show flagger locations where applicable
- Show message boards with text for two phases
- Show flashing arrow boards where applicable
- If symbols used in plan, include appropriate legend for clarification

Screening & Buffering Plans (Residential Subdivisions)

Included with all residential subdivision projects:

- Location of proposed and existing berms, fencing, walls or landscaping
- Sidewalks
- Location of streets and property lines
- Location of the screening and buffering area within the open space common area
- Location of existing and proposed utilities and easements
- Construction details of the fencing or walls
- Structural stamp for wall and fencing details
- Planting details
- Berm details
- Irrigation plan