SANITARY SEWER PROJECT REVIEW CHECKLIST

Applicant/Project Name

Date received ________________
Reviewed by ________________

Reviewers to verify minimum requirements stated below as applicable prior to approval

GENERAL REQUIREMENTS

1. General Plan
   - show north arrow on plans and maps
   - show project number, developer’s name, address and phone number
   - each sheet shall show seal and signature of California Registered Civil Engineer
   - list of utility agencies and contact persons
   - provide a general location map, scale = 1”:100’, showing project limits, adjacent streets, major streets and highway within one mile of project
   - provide an index of sheets
   - plan shall be ANSI D size = 24” x 36”
   - provide signature/initial block for City of Oakland Engineers
   - show location of benchmark data including City of Oakland datum
   - show City of Oakland monuments
   - show legend for symbols and linetypes used
   - each plan sheet to have a revision block, including number, description, drawn by, checked by, approved by and date
   - show and number manholes and other structures (request form for MH #s)
   - show street names, lot #’s, building #’s, parcel #’s, addresses
   - show house/building sewer connections
   - show existing and proposed utility mains, vaults and boxes, utility poles, electroliers
   - show underground service alert and phone number to call
   - trench excavation safety protection notes shall be shown on each plan sheet
   - trenching shall conform to Standard Detail D-22 & D-22.1
   - include General Notes in conformance with City of Oakland requirements
   - show details used if different than the City Standard
   - plans should indicate Matchline from one sheet to the next sheet, indicating stationing and Sheet No
   - indicate if permits are required from other agencies
   - indicate whether the improvements require other permits such as encroachment permit, building permit, tree removal permit, etc.
provide tributary areas that will contribute flow to the sewer system, including flows from the developed area to the point of connection to main line
provide an estimate of population for the proposed development
describe land use or type of development which defines the densities of population and type of users contributing to the flow within the tributary areas
determine the per capita flow of the new improvement
contact homeowner’s association, merchant association as necessary for the planned improvement

2. Sewer Plan & Profile
- show plan over profile, scale = 1" : 40' horizontal, 1" : 4' vertical; or 1" : 20', 1" : 5'; or 1" : 50, 1" : 5. Any other scale will not be accepted
- show property lines, right-of-way lines, creeks, sanitary sewer easements with bearings and distances, easement width, wherever applicable
- show adequate horizontal control, tie new lines to the horizontal control
- show pipe length, type, class, slope, inside diameter, and direction of flow
- sanitary sewer plans and profiles are drawn from left to right, low point to high point
- show stationing of manholes and house/building sewer lateral connections at mainline sewer, stationing to be from downstream to upstream, include match lines where appropriate, and where sheet continuation can be found
- stationing shall be shown at each manhole and at every 50 feet intervals along the main line
- show manhole rim and invert elevations in plan & profile
- invert are shown at each manhole with In and Out flow elevations in the profile view
- existing and proposed sanitary sewer, storm drain, and all utilities are shown on plan and profile views
- whenever sewer and water intersect each other, provide a table with invert elevation of each; clearance and pipe construction to comply with Health Department guidelines
- show all intersecting utilities in plan & profile
- show both existing and finished grades
- show existing and proposed with different line types and line weights
- show groundwater level, if present
- sanitary sewer shall be laid in straight alignment with uniform grade between manholes or structures
- all sanitary sewer main and service lateral slopes shall meet the City of Oakland sanitary sewer design guidelines
- on any sewer main aligned parallel to a proposed or existing storm pipes, the Designer must assure that all lateral services have a minimum of 2% slope and do not conflict with the existing/proposed storm structures
- Designer is to field verify the existing sanitary sewer invert elevations
- saw cut and replace existing asphalt or sidewalk

SPECIFIC REQUIREMENTS

1. Manholes
- lampholes, cleanouts, and drop connections shall conform to Standard Detail D-2
- manholes shall conform to Standard Details D-11 & D-12
2. Pipe
- sewer main and service laterals shall have a minimum cover of 3.0’ from top of pipe to finish grade
- all pipes shall be designed to withstand an H-20 highway loading and existing sub-surface conditions
- minimum inside diameter mainline sewer = 8"
- minimum inside diameter house/building connection = 4"
- Designer shall indicate on plans the point of connections(s), size and the direction flow of existing sewer main in which the proposed line will be connected to
- sewer crossings shall conform to Standard Detail D-23, D-32 and D-33
- provide pipe testing requirements
- provide requirement that pipes shall be closed circuit televised in accordance with the current City standard
- are the sanitary sewer pipes designed for a minimum velocity of 2 feet per second
- minimum easement for sewer within private properties shall be 10 feet wide, unobstructed and without encroachment of any improvement
- pipe materials shall be:
  - vitrified clay pipe,
  - ductile iron pipe, class 52 with approved lining/coating,
  - high density polyethylene pipe, SDR 17 (or better) with smooth interior, light and plain colored pipe,
  - reinforced concrete pipe with an approved lining/coating, or
  - cast iron pipe with an approved lining/coating
- sanitary sewer main shall be located in the street centerline
- sanitary sewer main shall not be located under the sidewalk or curb & gutter area
- pipes shall run in straight alignment between structures
- main sewer lines connected to a manhole more than 18” above the flowline will require a drop connection
- if flexible pipes are used, provide detailed load calculations for pipe design

3. House/Building Connection
- one connection for each individually owned unit
- show locations of 2-way cleanouts
- locations of cleanouts shall be accessible at all times
- minimum size of the 2-way cleanout shall be 4”
- house connection cleanout shall conform to Standard Detail D-24
- the last two laterals shall be connected to the main line with a wye connection

4. Force Main, if necessary
- force main shall be reviewed and approved by Building Department
- provide maintenance procedures
- provide a monthly or weekly inspection reports
provide homeowners association agreement, CC&R and other related information
- minimum inside diameter is 4” (IPS)
- minimum cover is 4.0’
- minimum class is DR-13.5 (128 psi)
- provide a cleanout assembly at 300’ max. intervals and at > 45-degree change in line
- provide drain manhole at low points
- provide air relief chamber at high points
- provide pipe, fittings and valves in class sufficient to accommodate testing requirements

5. Pump Station, if necessary
- proposed mechanical equipments shall be reviewed and approved by the City maintenance division
- electrical details shall be reviewed and approved by the City Electrical Department
- provide positive site drainage
- provide thrust blocks at all angle points
- provide pre-fabricated or structurally designed concrete control vault
- all areas within the pump station fence line must be paved
- provide maintenance procedures
- provide weekly or monthly inspection reports
- provide pump manuals
- provide for emergency plan for any of the equipment failures
- provide for emergency flashing lights and related features when pump station is down
- provide for emergency contacts

6. Geotechnical Requirements, if applicable
- provide soils report as part of the contract document
- any type of backfill and relative compactions shall conform to the recommendations of the Geotechnical Engineer
- show soil boring/test hole location and groundwater elevation
- provide boring logs

7. Specifications
- show and describe all bid items used
- include specifications and special provisions for each bid item used
- show the number of days to complete the construction of project
- provide traffic control requirements during construction
- provide shoring methodology

NOTE:
1) All Sanitary Sewer Design shall conform to the City of Oakland Sanitary Sewer Design Guidelines and the Standard Details for Public Works Construction.