CITY OF MORGAN HILL

CHECK LIST FOR IMPROVEMENT PLANS APPENDIX B

Planning Division Name: _____ Planning No: _____

Subdivision Name: _____ Tract No: _____

Public Works Project Number: _____ Assessor's Parcel No: _____

Tentative Map Approval Date: _____

Engineering Firm: _____ Job Number: _____

Project Engineer: _____ Telephone Number: _____

Note: Digital file submittals shall be *AutoCad Release 12* (minimum) on standard 3½" diskette.

(Appropriate sections to be checked off by the Engineering firm and provided along with 1st submittal)

	Checked By/ Date/Comments
( ) 1st Check ( ) 2nd Check ( ) 3rd Check	
7 Sets of Improvement Plans with Landscape Irrigation Plan.	
Sets of Hydrology Map and Calculations.	
Retention Pond Design Criteria on Plans.	
Copy of Engineer's Estimate.	
Copy of Soils Report and Pavement Design Calculations (Arterials).	
Set of Sewer Map and Calculations.	
Copy of Final Conditions of Approval (Resolutions).	
Copies of Fireflow Calculations (Commercial).	
REVIEWED BY:	
1. Utilities Systems Manager.	
2. Engineering Division Inspection Section.	
3. Central Fire District.	
4. Sent to P.G. & E., Telephone & Cable T.V.	
5. Other Agency Review:	
a. Santa Clara Valley Water District.	
b. Other (Specify).	

Checked By/
Date/Comments

GENERAL (Applicable to every sheet)

1. Sheet size is 24" x 36" with 2" space on left side of border and 1" space on right side. _____
2. Title Block/Border of each sheet (contains as a minimum):
   a. City of Morgan Hill Public Works Department logo. _____
   b. City Engneer's signature block. _____
   c. Design Engineer's signature block. _____
   d. Design Engineer's seal, R.C.E. number and original signature (stamped signatures are not acceptable on final submittal). _____
   e. Horizontal scale (1"=40' max) & Vertical scale (1"=4' max). _____
   f. Name of Subdivision or Project and Sheet Name. _____
3. Stationing referenced to nearest intersection. _____
4. All offset distances measured from center line. _____
5. City Standard Details referenced correctly & unchanged (with border). _____
6. Details other than standard, properly detailed. _____

TITLE SHEET

1. Required City General Notes on left side (compare to App.A). _____
2. Project Area Diagram: _____
   a. Project limits shown as well as any City-County boundaries. _____
   b. Phase boundaries (if applicable). _____
   c. Lots and lot numbers. _____
   d. New/existing abutting right of ways, easements and street names. _____
   e. New electroliers. _____
   f. TBM shown with reference to an approved City benchmark. _____
   g. Plan Sheet references. _____
3. Sheet Index. _____
4. Symbol/Abbreviations Legend. _____
5. Location Map with North Arrow. _____
6. Construction Quantities/Scope of Work shown and itemized. _____

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STREETS

A. PLAN VIEWS

1.	Promised items in Project Narrative Questionnaire are shown on plans.	
2.	Handicap ramps are designed per Standard Details.	
3.	Property corner cutoffs used where handicap ramps installed (see Standard Detail A-1) otherwise concentric with curb.	
4.	Curb curve data given – central angle, length, and radius.	
5.	Phase boundary shown (if applicable).	
6.	R/W and street width dimensions shown.	
7.	Centerline stationing at 100' and at BC & EC of horizontal curves.	
8.	Lot/parcel lines and numbers/letters shown.	
9.	Cul-de-sac cross slopes from high point to gutter lip–.02 min/.05 max.	
10.	Rim and invert elevation and station given at all drainage structures.	
11.	TC elevation and station at property line extensions.	
12.	TC elevation and station at grade breaks and at curb returns.	
13.	0.0025 minimum slope observed on all streets at curb line with minimum 0.2 foot fall around returns.	
14.	Location of underground pipes and utilities shown.	
15.	Fire hydrant and electrolier meanders per Standard Detail W-9 & E-2.	
16.	Street monuments shown.	
17.	Street names shown.	
18.	All notes and standard symbols conform to legend.	
19.	All ex. Utility poles, manholes, valves, signs, mail, boxes, trees, etc. shown. Indicates those to be removed, relocated or adjusted to grade.	
20.	Continuations and cross streets properly referenced i.e. (See sheet #.....).	
21.	Street knuckles are per Standard Detail A-22 or approved deviation.	
22.	Street signs, traffic signs and barricades shown in proper locations.	
23.	Driveway locations & stationing shown. Width 16'-24' (residential).	
24.	Show existing manholes, water valves and other facilities to be adjusted to grade.	
25.	North arrow shown for each plan view area.	

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STREETS

B. PROFILES

1.	Vert curves designed for proper speeds per Highway Design Manual.	
2.	Minimum vertical curve lengths observed. (100').	
3.	Vertical scale 1" = 2' of 1" = 4'.	
4.	Vertical curves used for grade-breaks where algebraic difference >1%.	
5.	Cul-de-sacs, show profiles @ centerline through radius point to TC at end of cul-de-sac (dashed line).	
6.	2% maximum grade observed across intersections.	
7.	All underground pipes and utilities shown to include storm drain, water and sewer.	
8.	Existing ground on centerline shown.	
9.	Finished grade profile for top of curb shown.	
10.	Centerline profiles of intersecting streets shown to their point of intersection.	
11.	New road profile conforms to off-site existing road profile.	
12.	Centerline stations and elevations shown @ all BVC, EVC, PIVC, grade breaks, low points and high points.	
13.	All slopes in profile shown.	
14.	Shows all utility crossings with clearances indicated.	
15.	Manhole and drop inlet invert and flowline elevations shown.	
16.	Elevation at high and low points of water mains shown.	

GRADING PLANS

1.	Erosion control plan included when project is planned for construction between October 15th and May 1st.	
2.	Existing elevations or contours shown.	
3.	Existing and proposed storm drain lines and structures shown.	
4.	Proposed pad grades and lot numbers shown. Minimum grade of lots 1%.	
5.	"Lowest Floor" shall be minimum 1' above calculated high water point or FIRM base flood elevation, whichever is greater. See Section 4.500 of the Design Standards for further details.	
6.	Retaining walls and sound walls shown.	
7.	Section of typical lot shows property lines and slopes/grades.	
8.	Elevations at rear of lots shown.	
9.	Elevation of surrounding lots shown.	
10.	Shows grading required for off-site drainage.	

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11. Profile shows back-of-curb/sidewalk and original ground.	
12. Grading conforms to adjacent properties and does not create possible adverse effects on future development.	
13. Drainage does not occur across lot lines. Lots shall drain to streets where practicable.	
14. All slopes are maximum 2:1 or per Soils Report.	
SANITARY SEWERS	
1. System in agreement with approved tentative map and master plan.	
2. Design conforms to City Design Standards and Details.	
3. Adequate cover. 3' min to finished grade – 2' min for ductile iron.	
4. Minimum horizontal and vertical clearances from water main.	
5. Pipe size, type, slope, and length between structures shown.	
6. Connection to existing facilities shown. Manhole installed when tying to existing lines.	
7. Where sewer line extension is possible, do proposed lines extend to at least the subdivision boundary?	
8. Are curved sewer deflections less than 80% of pipe manufacturer's recommended maximum? Shows curve data or offsets if concentric with centerline. Short pipe lengths are indicated clearly on plans.	
9. Station and invert & top of manhole elevations shown.	
10. Sizes of existing lines shown.	
11. 400' maximum distance from manhole to manhole and 250' from manhole to clean out (at end of line).	
12. Minimum 2 fps velocity, 10 fps maximum.	
13. 0.1' drop around corner through manhole, or matches soffit elevation.	
14. Bolted manhole covers for any off street manholes.	
15. In unimproved areas, manholes extended 1' above ground.	
16. Elevations, slopes and distances all mathematically correct.	
17. Minimum vertical and horizontal distances to water lines maintained.	
DRAINAGE	
A. HYDROLOGY – HYDRAULICS	
1. Calculations conform to City Design Standards. Underground system designed to handle a 10-year storm, streets designed to carry a 100 year storm.	
2. Tributary drainage system designed to connect to City's future storm drainage system and conforms to Storm Drainage Master Plan.	

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3. Calculations shall include: HGL, FL, E1, Q, A, S, V, freeboard at structures, structure losses, & tailwater assumptions.	
4. Adequacy of in-tract and off-tract drainage system verified.	
5. All starting water surface calculations adequately verified.	
6. Drainage map showing street system, existing and proposed drainage system, slope arrows, tributary sub-areas in acres, peak flow in all pipes (1" = 100' preferred).	
7. All pipe in tributary areas labeled to correspond with calculations.	
8. Base Flood Elevation verified for the project area.	
B. EASEMENTS	
1. Off-tract drainage improvements (plan and profile) and accompanying easements shown. Off-tract offers of dedication for drainage easement submitted for review.	
2. Off-tract work to be done but no easement required; right-of-entry submitted for review.	
3. Easement widths indicated.	
C. STRUCTURES	
1. 1.00' minimum HGL to TC.	
2. Special structure calculations profided.	
D. PIPE	
1. Minimum slope of 0.002 observed (min. 2 fps). Size (15" min.), class, slope, length, and type of pipe (RCP shown in profiles.	
2. Indicates clearly on plans where non-standard pipes are used.	
3. Are curved storm line deflections less than 80% of pipe manufacturer's recommended maximum? Shows curve data or offsets if concentric with centerline.	
4. Elevations, slopes and distances all mathematically correct.	
5. Matches hydraulic/hydrology calculations.	
6. Manhole inverts and rim elevations shown along with catch basin invert elevations.	
E. CHANNELS	
1. Maximum velocity in earth channel verified by soils report.	
2. Channel side slopes as specified by soils report.	
3. Channel design per City Specific Plan (if applicable).	
F. TEMPORARY STORM DRAIN RETENTION BASINS	
1. Runoff and volume calculations per City Design Guidelines.	
2. High water level shown on basin section.	

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3. Basin bottom 5’ above water table unless statement from soils engineer indicates range of depths, then 2’ minimum allowed.	
4. Outfall protection using rip-rap required.	
5. Chain link fence with slats required around basins >3 feet in depth.	
6. Pedestrian access ramps (if any) meet ADA requirements.	
7. Off-tract basins have an access road around the basin.	
8. Easement boundary shown.	
9. Maximum sloped ratios for turfed or landscaped side slopes = 4:1.	
G. GENERAL	
1. Show winterization procedures and erosion control measures.	
2. Copy of permit provided (if applicable) necessary for outfall.	
WATER	
1. Design conforms to City of Morgan Hill Design Standards and Standard Details for Construction.	
2. Design conforms to Water Master plan.	
3. Minimum distances to sanitary sewer and storm lines maintained.	
4. Length shown as distance between crosses or tees.	
5. Air relief valves at high points.	
6. Invert elevations shown at all grade breaks and air relief valves.	
7. Sizes of all existing lines shown.	
8. Fire services shown (if applicable).	
9. Size and type of pipe shown in profile.	
10. Blowoffs at dead-end lines.	
11. Valves on all legs of a “cross” or “tee”.	
12. Minimum cover 36 inches.	
13. Minimum water service size 1 inch.	
14. Size and location of water services laterals and meter boxes shown.	
15. Fire Hydrant spacing per Design Standards section 2.600.	
16. Valves spaced per Design Standards section 2.700.	