

TYPES OF DRAWINGS REQUIRED FOR A CIVIL ENGINEERING PROJECT

Introduction

- Engineering drawing is a language in which the ideas of designers, engineers or draftsmen are expressed in a manner that is clearly understood by the technician or person concerned with the job.
- A detailed drawing or a sketch is made of a particular job for completion, manufacture or construction.
- Engineering drawing is normally the starting point in a long chain of events which finally results in the production, manufacture or construction of a job required by some section of the community.

Classification of Civil Engineering Drawings

- Civil engineering drawings are classified as:
 - Tender Drawings
 - Contract Drawings
 - Working Drawings
 - Completion Drawings

Tender Drawings:

- It is necessary for an engineer to decide the extent of preliminary design to be carried out at the briefing/report stage.
- Once formalities are over and the final selection has been cleared, an engineer must prepare a set of engineering drawings called Tender Drawings.
- Tender drawings together with the other tender documents, bill of quantities, specification etc, describe the project scheme to the contractor so that he can price the construction work accordingly.
- Tender drawing are the first evidence of the project scheme regarding type and quality of the work involved and hence these are prepared by engineers with clarity and understanding.

Tender drawings include:

- Proposal and perspective views (according to client requirements by the architect)
- Plot size, use of the building, road level
- Plans and elevations on 1/8" scale
- After discussion final proposal is decided

Contract Drawings

- The engineer can carry on with detailed design only after the completion of tender drawings. If tendering has been straight forward and without any alternative proposals, the contract drawings will be the same as tender drawings.
- If alternate proposals have been accepted, new or additional drawings will to be prepared by the owner's engineers according to the accepted tender proposals and alternatives.
- Contract drawings are printed on good quality paper and are provided with cloth backing to withstand handling and long storage.

Contract drawings include:

- Legal documents
- Approved from the controlling authorities like LDA
- Plans, elevations and sections on 1/8" scale
- Site plan(size of constructed area as compared to total area) on 1/16" or 1/32" scale
- 5-7 copies on a-1 page
- Location plan on 1/64" scale
- Schedule of openings
- Statement of area(covered area, allowable covered area, area for each floor)
- Name and complete address of client
- Drawings should be well signed by the client

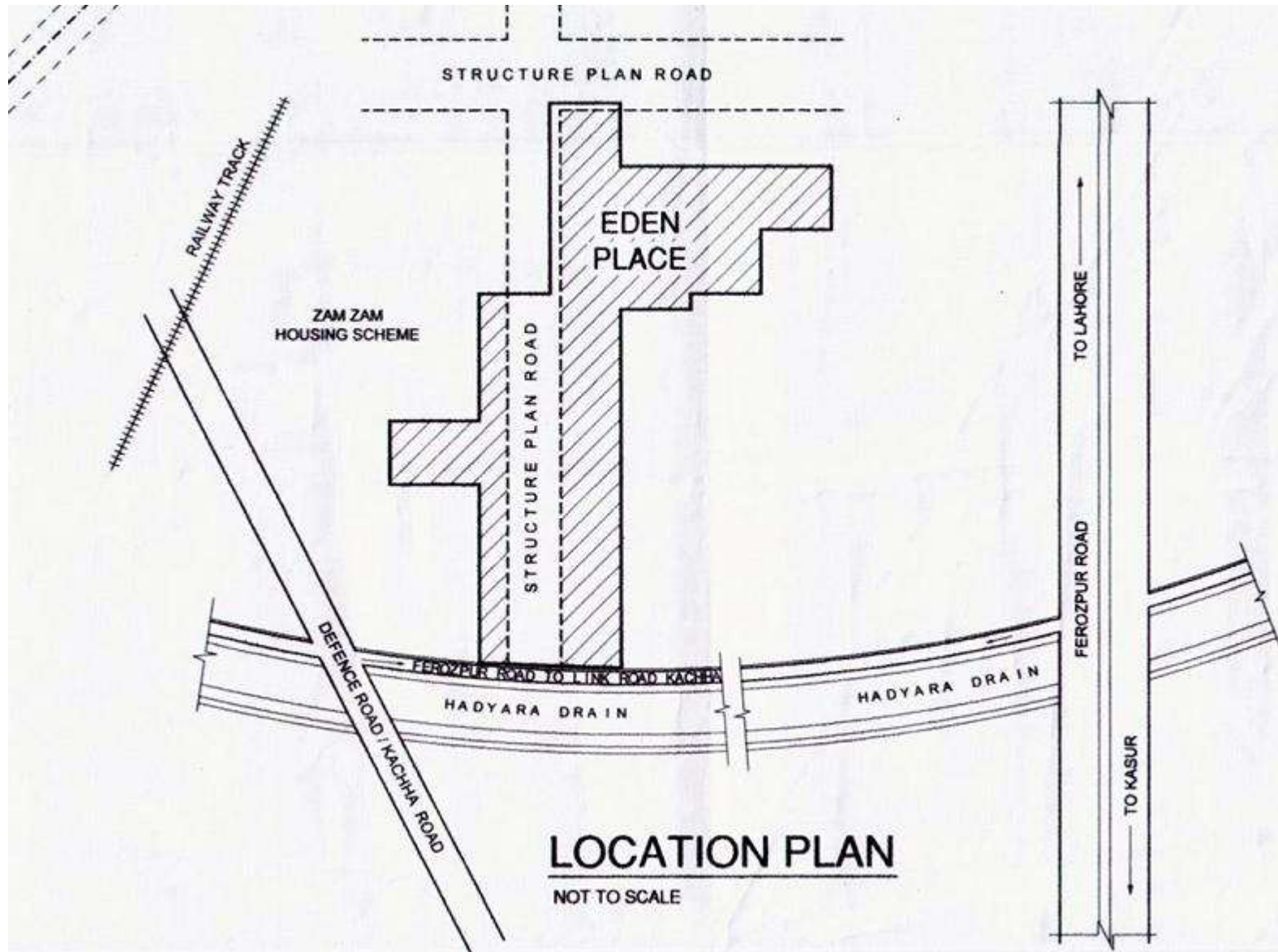


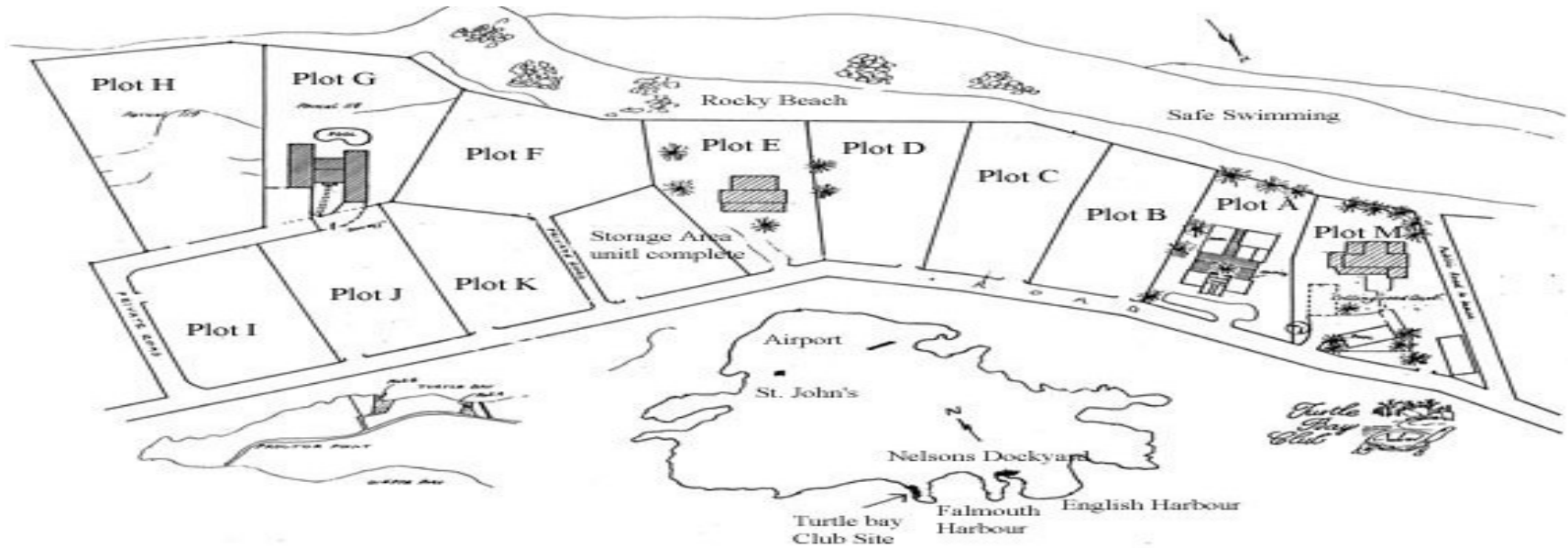
PROPOSED SITE PLAN

PROCESS SET

DATE: 11-15-2011

SCALE: 1/8" = 1'-0"



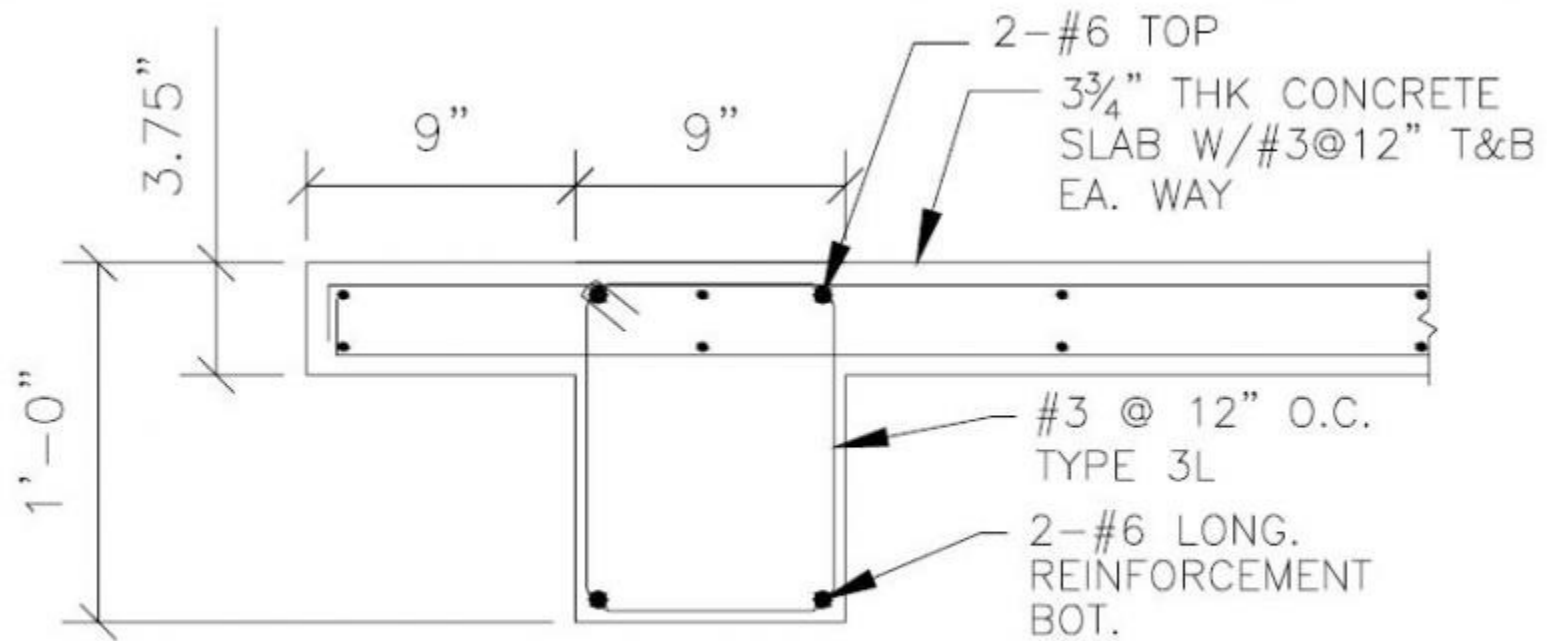


Working Drawings

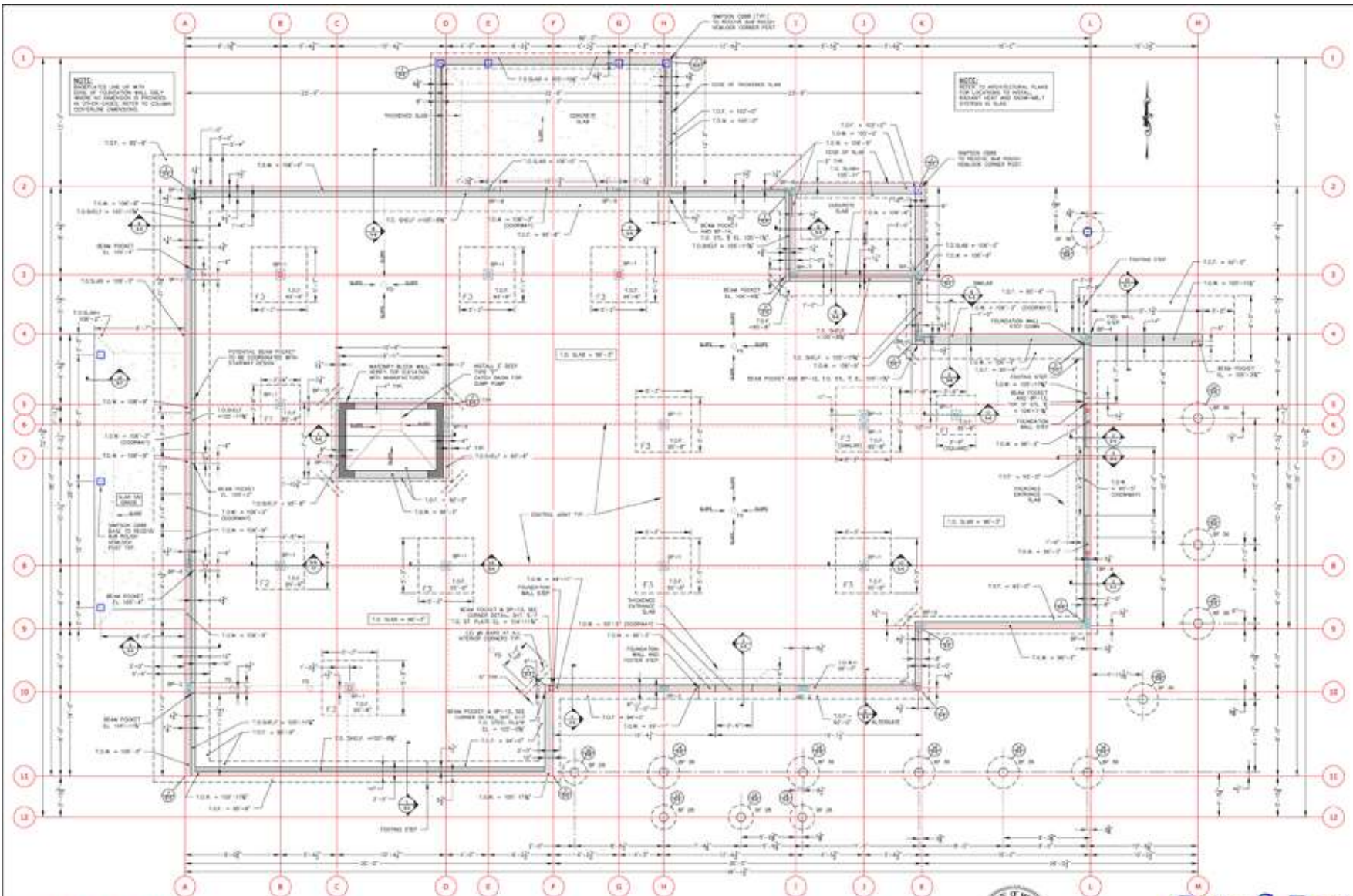
- As the name itself indicates, working drawings are used for working, manufacturing , constructing or building purpose and must therefore represent the engineers final decisions and design details.
- However, for large projects with only outline drawings at the tender stage, the drawing office will have to prepare detailed working drawings.
- In case working drawings lack finer design/construction details, notes and instructions are incorporated on the drawings to facilitate construction and avoid delays.

Working drawings include:

- Architectural working drawings
 - Structural working drawings
 - Foundation plan
 - Reinforcement details
 - Plumbing works
 - Details of doors and windows
 - Electrification plan
 - Bathroom and kitchen details
- (Small variations in the design can be made according to field conditions)



TRANSVERSE BEAM - SLAB DETAIL



SECTION	NO.
▲	
▲	
▲	
▲	
▲	
▲	

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FOUNDATION PLAN

REV	DATE	DESCRIPTION
1	12/12/2008	ISSUED FOR PERMIT
2	1/17/11-11	REVISED PER PERMIT
3	10/21/2010	REVISED PER PERMIT
4	07/17/2011	REVISED PER PERMIT
5	02/08/2011	REVISED PER PERMIT

STRUCTURAL PLAN NOTES:
 1) STRUCTURAL ENGINEERING PLANS SHOWN IN ARCHITECTURAL PLANS PROVIDED BY BECKSTROM ARCHITECTURE.
 2) THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL FOUNDATION WALLS AND BEAMS SHOWN ON THIS PLAN AND REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.
 3) ALL FOUNDATION WALLS AND BEAMS SHALL BE CONCRETE AND SHALL BE CAST IN PLACE.

□ F2 = FLOOR SLAB
 ▽ SLOPE (UP OR DOWN) FLOOR SLABS
 ○ FOUNDATION WALLS AND BEAMS
 ▽ FOUNDATION WALLS AND BEAMS

FOUNDATION PLAN
 SCALE 1/4" = 1'-0"

BASMENT F.F.E. = 96'-3" (36.25')
 FIRST F.F.E. = 104'-3" (316.25')
 SECOND SURF. EL. = 115'-8"



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Completion Drawings

- Completion drawings are also called Record or As-built drawings.
- There are bound to be certain variations, additions or alterations due to unforeseen site conditions and advancement in technology.
- Howsoever small the variations, additions or alterations might be, these are recorded on a set of drawings called Completion , Record or As-built drawings.
- Record drawings should be prepared simultaneously as the work proceeds.

Interpretation of Engineering Drawings

- An engineer reads and interprets many more drawings than he produces himself. The various architectural and engineering drawings are prepared according to codal provision so that these may be read clearly without any fear of misinterpretation and confusion. For proper interpretation of engineering drawings, the engineer must have knowledge of the following:
 - Scales
 - Symbols
 - Projections
 - Line work