27-2-1989

C No. 3L

From

The Chief Engineer,
H.S.A.M.Board,
Panchkula.

To

1-The Superintending Engineers,
Panchkula/Karnal/Rhtak.

2- All Ex.En's in HSAMBoard.

C E-89/2845-57 dt 27-2-89

Sub: Technical Circular:-Guidelines for submitting detailed estimate for roads.

It has been noticed that the detailed estimates for roads being received in C.E.office do not contain uniform standard and seal, and therefore are returned again and again for correction/amending or for attachment of more drawings. As a matter of fact only one standard should be followed for all estimates of roads.

Following guidelines, therefore, are being sent to you for strict compliance. Each S.E/Ex.Ens should ensure that the estimates being submitted by them are as per guidelines :

1. Detailed estimate for each project should consist of :

(a) Proper report of the estimate.

(b) Abstract of cost.

(c) Estimates of quantities.

(d) Analysis of Rate of items not covered by the relevant schedule of rates and

(e) Quarry/material source charts.
Index plan showing the rates road development and other features.

Where the project work is to be proposed in stages(according to budget),estimate should be prepared for each stage separately.

2. Drawings:

Project drawings should depict the proposed work in relation to the existing features. For easy understanding and interpretation, it is desireable that the drawing should follow a uniform practice with regard to size , scale and the

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details. Drawings should be of adequate size to accomodate reasonable length of the road or a structural unit in full detail. At the same time it should not be too large to necessitate several folds. Recommended size by IRC is 594 mm x 420 mm. So that could be easily stitched in a folder for convenient handling. On this size, it can accommodate plan and L section of one K.M. length at a scale of 1:1000(1 cm =10 m) in horizental scale & 1 cm to 1 meter in vertical scale .

Components of drawings:

1. Locality map cum site plan(index Map)
2. Land acquisition Plan (Shajra plan with proper Curves)
3. Plan and longitudinal Sections.
4. Typical cross section sheet.
5. Detailed cross sections.
6. Drawings for cross-drainage structures.
7. Road junction drawings.

1. Locality Map cum-site Plan: This is a combination of key map and index map drawn on a single sheet. The Key map(locality map) should show the location of the road with respect to important towns. This should be copied from survey of India maps of 1: 50,000 scale.

Site plan (index Map) should show the project road and its immeddiate neighbourhood covering the important physical features such as hills, rivers, tanks, railway lines, Mandis, sub-yards, purchase centres etc.& show the kilometerage from beginning to end.

2. Land Acquisition Plans: These should be prepared on existing village maps or settlement maps(shajra plan) giving the detail of property boundaries, and Khasra number. Plan should show the final centre line of the road the right of way limit, buildings, wells, monuments trees, etc.affected by the road alightment. The alignment with proper curves be shown on the shajra plan, with proposals

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to by pass the villages & to connect the proposed road at end junctions.

3. Plan and L-Section : Plan and longitudinal section shouldbe shown on a single drawings sheet for the one KM length. The Plan should be at top and L-section at the bottom. Common scale adopted is 1:1000 (1cm to 10m) for the horizontal and 1:100 (1cm to 1m) for vertical.

The plan among other things should show the final centre line of the road, right of way. Centre line of oxisting road ; where applicable, existing structures drainage courses, intersecting roads/railway lines, Electric & telephone lines, cable, location of cross drainage structure, design detail horizontal curves, bench marks, location of cross-section, contour, north direction.

4. The longitudinal section should show the profile of the proposed road, the natural surface level, formation level, H.F.L., gradient, cutting or filling at each chainage, the location or drainage crossings and intersecting roads etc. R.L.'s & R.D.'s at distances of 20m centre to centre.

5. Typical Cross Section Sheet : In a road estimate elements like width of carriage way and roadway, side slopes and pavement cross-fall will generally remain constant, for most of the road length. Instead of repeating these details on every cross section it shall be desirable to show these on a typical cross section sheet. Generally it may be necessary to show at least one cross section each for road in fill, cut and curve.

6. Detailed cross Section : The cross sections shouldbe presented serially along the continuous chainage at 20m intervals. These should show the ground level, (existing road level where applicable) and the proposed road level. The area of cut and or fill involved should be indicated as also the type & thickness of different pavement courses.

7. Drawings for cross drainage structure : In the construction of road, a large number of small cross drainage structures (i.e. culverts) will require to be constructed. Unless there is a special problem, it should

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normally be convenient to adopt standard designs for these standard design for RCC culvert. A standard drawings of 2m x 2M culvert design is enclosed. Standard drawing of I.R.C. if available be followed other standard drawings of PWD B&R Deptt. be followed.

7. Road Junction Drawings : Junction drawings should show the existing features of the intersecting roads.

8. Drawings for retaining Walls & other structures :

These drawings should clearly show the foundation and structure details as also the materials proposed to be used. The scale chosen should be large enough to show all the details.

9. High Flood Level : Information in this regard can normally be had from the Irrigation Deptt. who maintain & analyse such data. The road level should be kept one metre above High Flood Level. This be shown on L-Sections.

A set of drawings as required is attached for the guidance of the field officer.

These instructions should be read alongwith the instruction for preparation of R/C/Estimates issued vide this office letter No CEA-89/2300 dt. 17.2.89.

The above instruction are a brief of I.R.C. standard - Special Publication 19 i.e. " Manual for survey, Investigation & preparation of Road Projects". These instructions should be followed to ensure sending of complete estimates in the Ist instances. Every J.E./S.D.E./E.E./S.E. in addition to the Drawing Branch staff i.e. the ADM/HDM/C.H.D. should have a personal copy of this publication for reference. These booklets be arranged by the XENs by charging these to the project estimates.

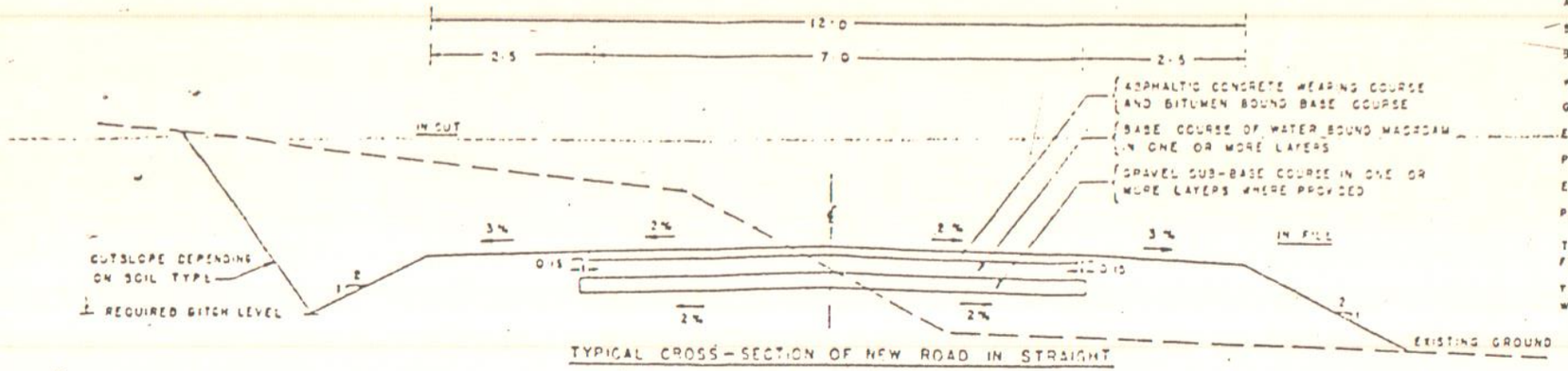
27/2/1989

Chief Engineer

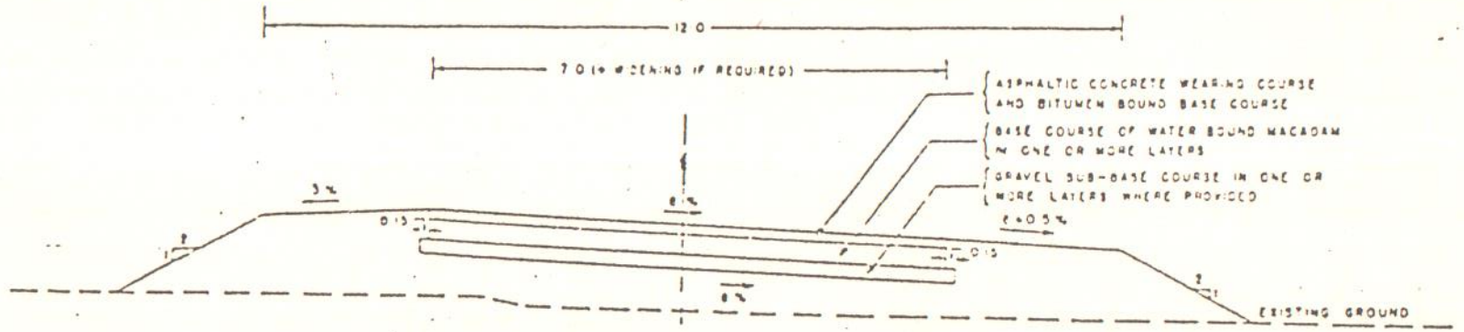
1. Locality Map/Index Plan
2. L.Section and Plan
3. Typical X-Section.
4. Detailed Cross Section.
5. Standard Design for RCC Slab culvert of Size 2mx2m.
6. Standard design of RCC pipe culvert with single pipe of 1m dia. 7. Road junction drawing.

LEGEND FOR SYMBOLS APPEARING ON PLATES 3 & 4

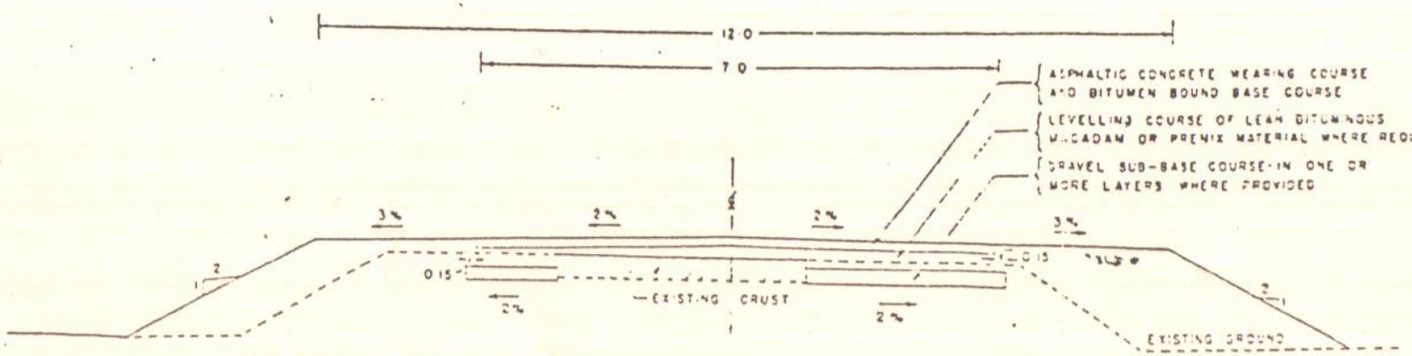
ASPHALTIC CONCRETE ... A
BITUMINOUS MACADAM ... B
BITUMINOUS LEVELLING COURSE ... B
WATER BOUND MACADAM (STONE METAL) ... WB
GRAVEL ... G
EXISTING ROAD
PROPOSED ROAD
EXISTING PAVEMENT
PAVEMENT COMPOSITION ... P
THICKNESS OF COURSE (in m) FOR STRENGTHENING ... S
THICKNESS OF COURSE (in m) FOR WIDENING / NEW CONSTRUCTION ... W



TYPICAL CROSS-SECTION OF NEW ROAD IN STRAIGHT



TYPICAL CROSS-SECTION OF NEW ROAD IN CURVE



TYPICAL CROSS-SECTION FOR WIDENING AND STRENGTHENING OF EXISTING ROAD IN STRAIGHT

NOTES:-

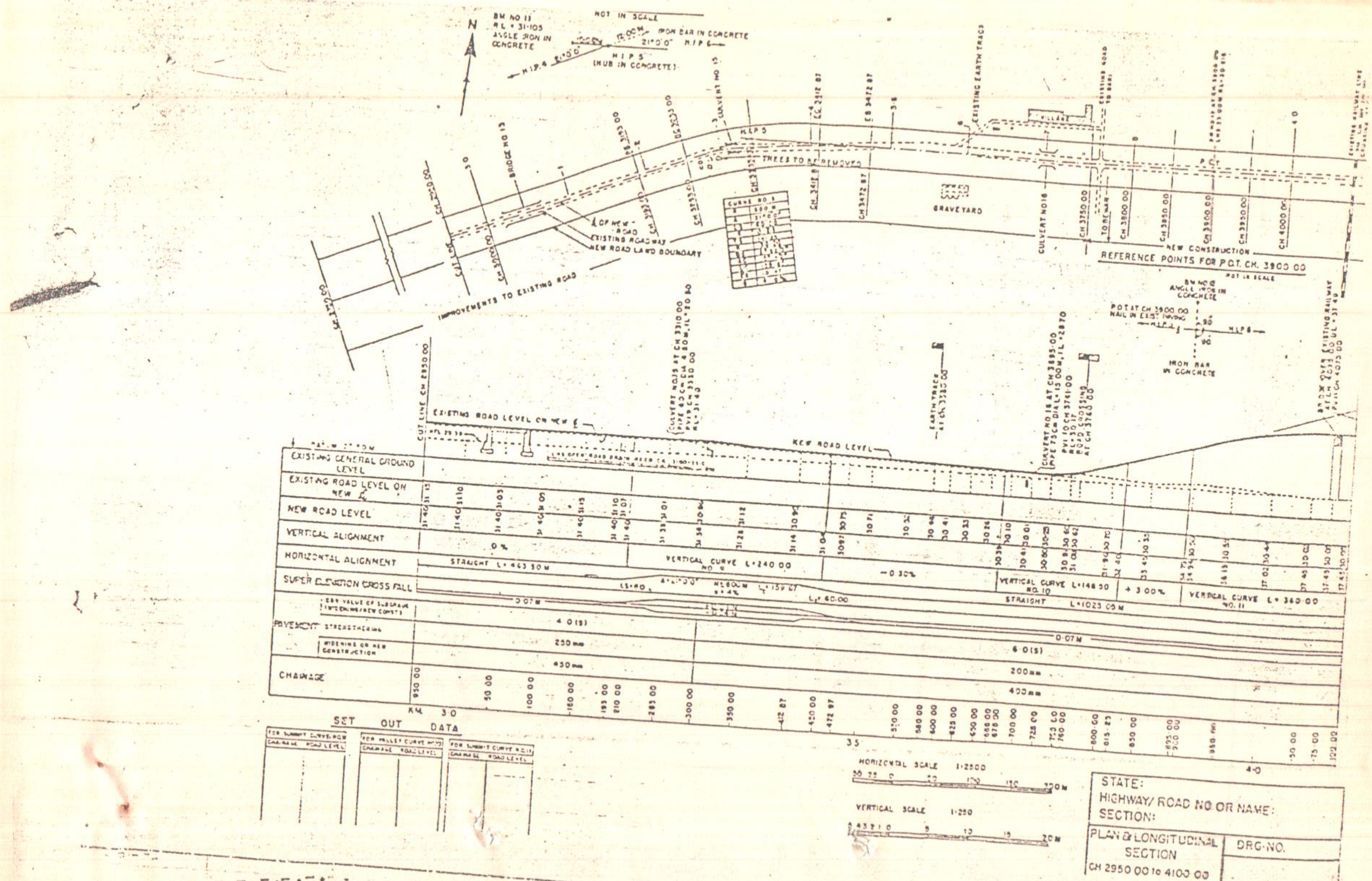
1 ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN METRES

2 THICKNESS OF PAVEMENT COURSES IS NOT TO SCALE

M 0·5 0 1 2 3M

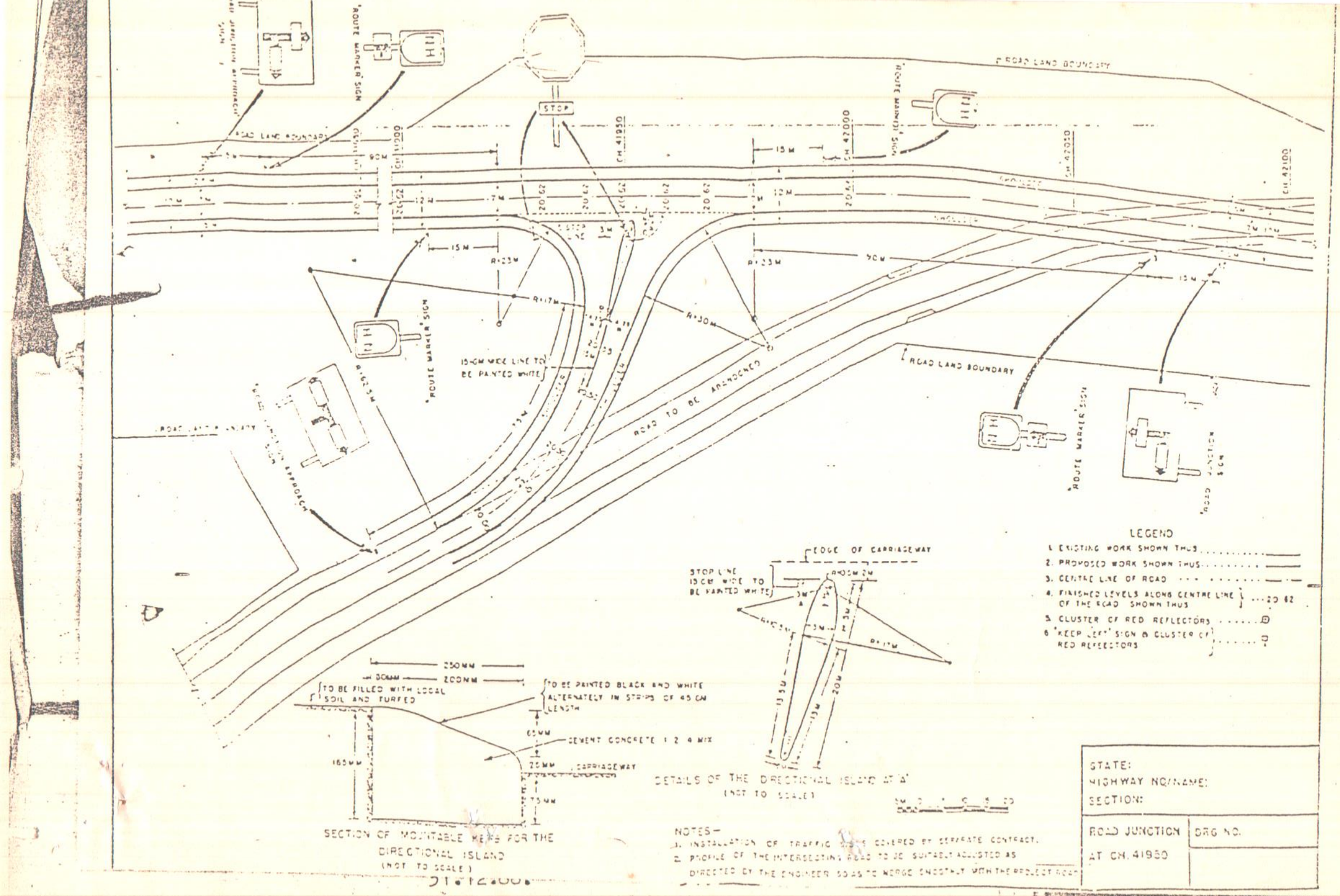
SCALE 1:50

TYPICAL CROSS-SECTIONS



Fanchkula (Elec)

129.25 lacs


ROAD LAND BOUNDARY
STOP
CH. 41950
CH. 42000
CH. 42050
CH. 42100
15 M
90 M
R=23M
R=17M
R=30M
15-CM WIDE LINE TO BE PAINTED WHITE
ROUTE MARKER SIGN
ROAD TO BE APPROACHED
ROAD JUNCTION SIGN
LEGEND
1. EXISTING WORK SHOWN THUS
2. PROPOSED WORK SHOWN THUS
3. CENTRE LINE OF ROAD
4. FINISHED LEVELS ALONG CENTRE LINE OF THE ROAD SHOWN THUS ...20 62
5. CLUSTER OF RED REFLECTORS
6. 'KEEP LEFT' SIGN & CLUSTER OF RED REFLECTORS
EDGE OF CARRIAGEWAY
STOP LINE 15 CM WIDE TO BE PAINTED WHITE
DETAILS OF THE DIRECTIONAL ISLAND AT 'A'
(NOT TO SCALE)
250MM
50MM
200MM
TO BE FILLED WITH LOCAL SOIL AND TURFED
TO BE PAINTED BLACK AND WHITE ALTERNATELY IN STRIPS OF 45 CM LENGTH
65MM
CEMENT CONCRETE 1 2 4 MIX
165MM
75MM
CARRIAGEWAY
SECTION OF MOUNTABLE KERB FOR THE DIRECTIONAL ISLAND
(NOT TO SCALE)
NOTES—
1. INSTALLATION OF TRAFFIC SIGNS COVERED BY SEPERATE CONTRACT.
2. PROFILE OF THE INTERSECTING ROAD TO BE SUITABLY ADJUSTED AS DIRECTED BY THE ENGINEER SO AS TO MERGE SMOOTHLY WITH THE PROFILE OF ROAD
STATE:
HIGHWAY NO/NAME:
SECTION:
ROAD JUNCTION AT CH. 41950
DRG NO.