BEFORE THE NATIONAL GREEN TRIBUNAL - SOUTHERN ZONE, CHENNAI

Original Application No. 39 of 2020(SZ)

BETWEEN:

Dr.Lubna Sarwath ..Applicant

-Vs-

The State of Telangana,
Rep by its Chief Secretary,
& 8 Others. ..Respondents

INDEX

Place : Hyderabad
Date: 13.03.2023

H.Yasmeen Ali
Counsel for Respondent No.3

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REPORT OF THE IRRIGATION DEPARTMENT BY THE 3rd RESPONDENT

1. As per the Hon'ble National Green Tribunal (SZ), Chennai passed in orders dt: **22.02.2023** to the Respondent No.**9** i.e., Phoenix Project proponents to prepare a plan replacing the Hume Pipes with box-type storm water drain and get the same approved by the appropriate authorities including the **Irrigation Department.**
2. M/s Phoenix Spaces Private Limited has submitted an application to the Irrigation department on 20.02.2023 duly submitting the plan of storm water drain from the existing culvert duly connecting to the Bulkapur Nala and requested to examine the proposals of design and alignment of Storm water drain duly considering the cloud burst situation.
3. The undersigned has inspected the site on 10.03.2023 along with the Dy.Executive Engineer, Irrigation Sub Division No.4, Hyderabad and observed that, a natural 1st order stream is originating just before the project proponent and carrying the rain water to the Bulkapur Nala. The said stream is existed in Geological Survey of India Toposheet No. **E44M7** (Annexure-I). There is a culvert over this stream was constructed while laying road earlier.
4. Collected the details of the said 1st order stream and arrived the catchment area is **0.0593 Square Miles** i.e., equivalent to the **1,53,586 Square Meters** from the GSI Toposheet No. **E44M7** (Annexure - II).
5. **Rainfall with 100mm per hour** with peak runoff is categorized as cloud bursts. Catchment area is worked out & based on the above the discharge is arrived and correlate with the proposed storm water drain from the existing culvert portion to the Bulkapur Nala. As the Respondent No.**9** have proposed storm water drain with **1500mm x 1500mm is not sufficient to carry the water** (Copy of application enclosed, Annexure - III) in cloud bursts situation in present condition. The same is informed to the Project Proponent.

Deponent
Executive Engineer, I&CAD.,
Irrigation Division No. 1,
Red Hills, Hyderabad.

6. Based on the hydrology, technically it is feasible to re-align the stream from North east of the project proponent land leading towards southern side and connected into the Bulkapur Nala in South East side. The Box-type storm water drain size should be 2000mm x 2000mm to accommodate the maximum flood discharge even in Cloud bursts situation for the mentioned 1st order stream from the Existing culvert to the Bulkapur Nala.
7. The necessary calculations & cross section of the proposed box type-drain for the mentioned 1st order stream is enclosed for taking further necessary action (Annexure - IV & V). The same is communicated to the **M/s Phoenix Spaces Private Limited and instructed to construct a box-type drain for storm water with 2000mm x 2000mm size** for disposal of flood water during the rainy season and even in cloud bursts condition duly keeping the following conditions:

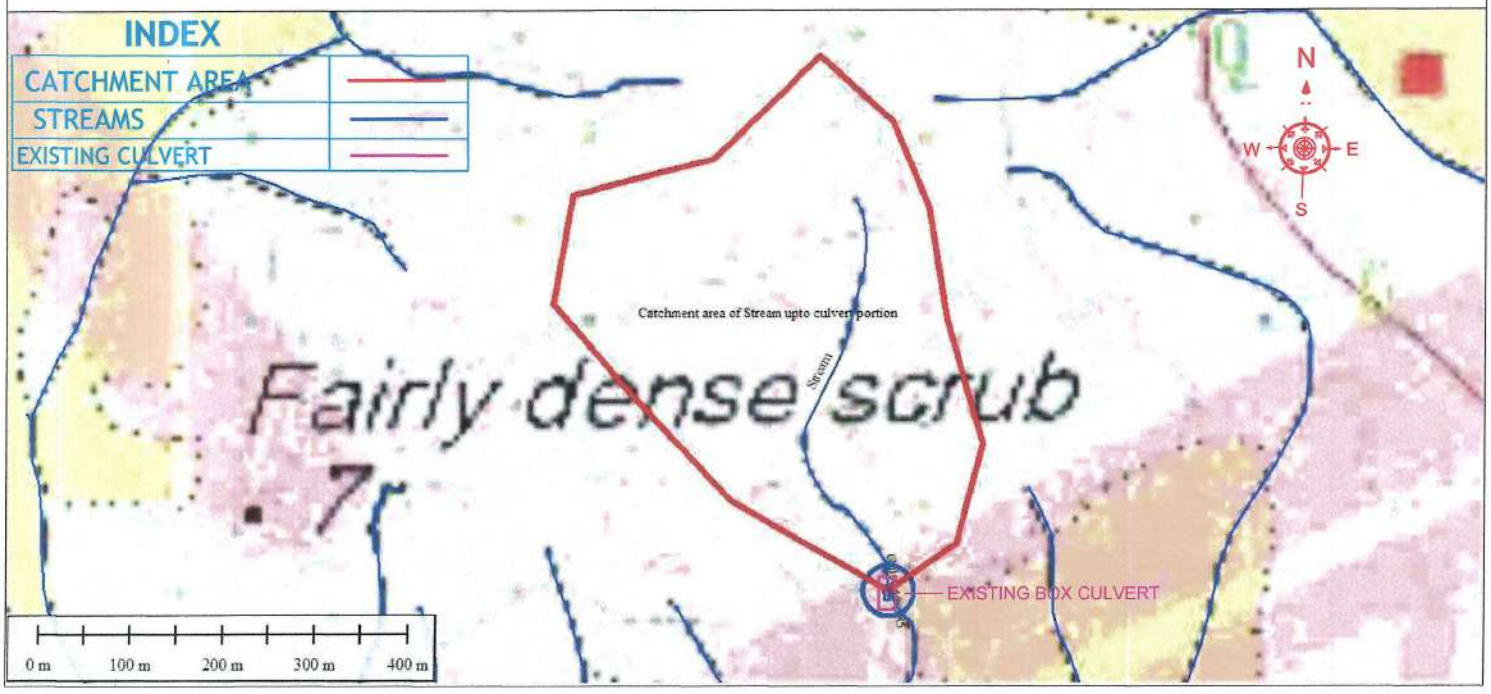
i. Construction of box-type Storm water drain shall be taken up by the M/s Phoenix Spaces as accepted in the application with their own cost. Department will not bear the cost of Storm water drain.
ii. Construction of box-type storm water drain activity shall not decrease the carrying capacity of the stream.
iii. Construction of box-type storm water drain shall be taken as per Design & Drawings enclosed herewith.
iv. Alteration or deviation of the alignment of storm water drain shall not be accepted.
v. No debris or wastage will be allowed in storm water drain area during & after the construction.
vi. Construction of work shall be carried out under the supervision of I&CADD field officials.
vii. Before, during and after construction photos shall be submitted to this office for taking further necessary action.
viii. M/s Phoenix Spaces Pvt. Ltd., shall submit the progress of the work periodically to this office for informing to the higher authorities.
ix. Any violation of the above conditions may leads to the cancel the permission now issued without prior notice.

Deponent

Executive Engineer, I&CAD.,
Irrigation Division No. 1,
Red Hills, Hyderabad.

ANNEXURE - I

TOPO IMAGE SHOWING CATCHMENT AREA OF STREAM AT EXISTING BOX CULVERT NEAR SY NO.286 OF PUPPALGUDA



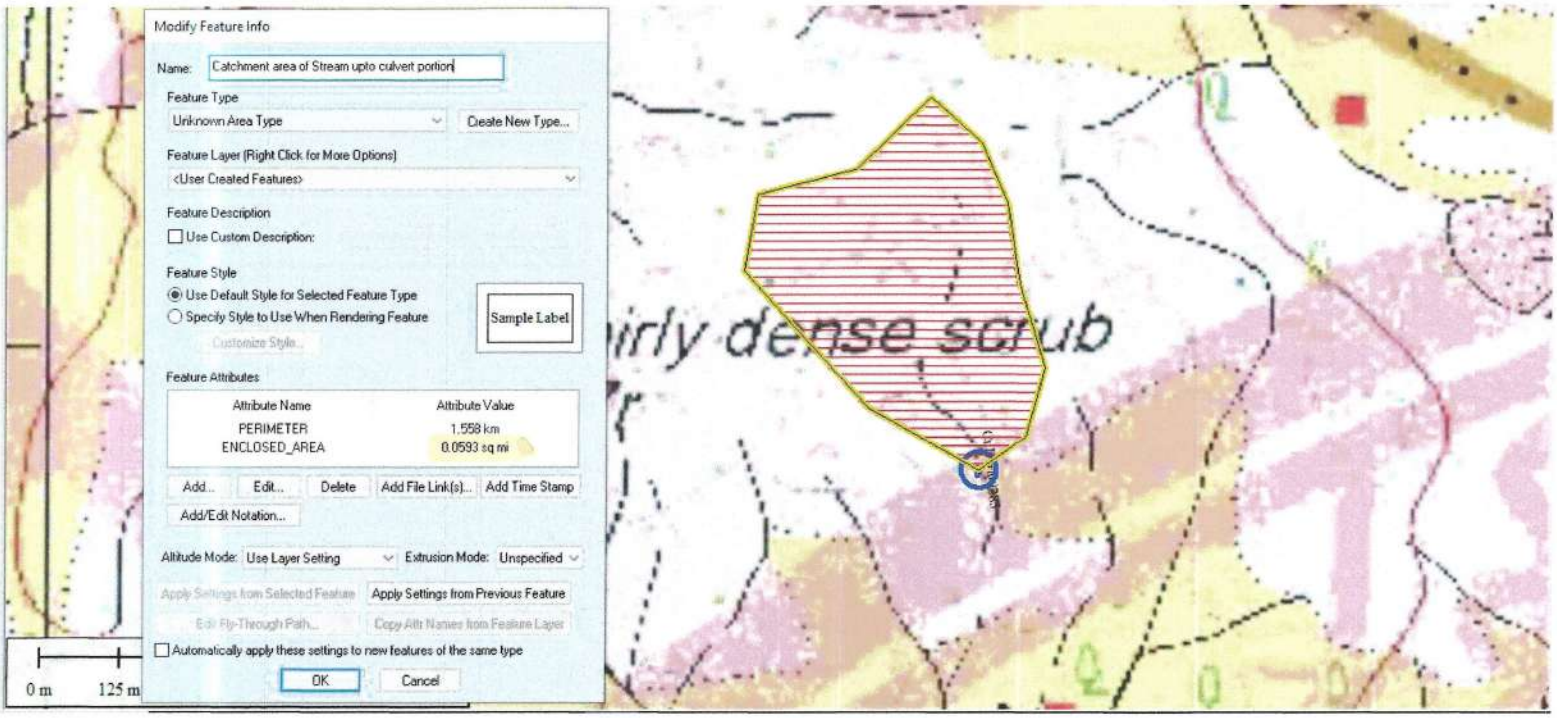
AEE

Dy. Executive Engineer I & CADD.,
Irrigation Sub Division No. 4, Hyderabad

Executive Engineer, I&CAD.
Irrigation Division No. 1,
Red Hills, Hyderabad.

Annexure-II

4



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Irrigation Sub Division No. 4, Hyderabad

Executive Engineer, I&CAD.,
Irrigation Division No. 1,
Red Hills, Hyderabad.

Annexure - III

Phoenix | Let's soar together

Date: 20-02-2023

To,
Executive Engineer,
Irrigation & CAD. Department,
Irrigation Division No. I,
Hyderabad.

Sir,

Sub: Submission of plans for construction of box type storm water drain, situated at the development site in Survey Nos. 285, 286 and 287 of the Puppalaguda Village, leading from the culvert to the Bulkapur Channel- Approval -reg

***

Please refer to the Order dt. 07-02-2023 of the National Green Tribunal Southern Zone, Chennai in Original Application No. 39 of 2020(SZ).

The Hon'ble tribunal has indicated that the existing system of diversion of the storm water through the 0.9 meter dual hume pipe have to be replaced by box-type storm water drain which would be more in terms of width for the unhindered flow of water which can be connected to the Bulkapur Channel and the plan should be approved by the appropriate authorities including the Irrigation Department.

In this regard, as per the directions of the Honourable NGT, we have prepared detailed plans for construction of box type storm water diversion system which are submitted herewith for your perusal and approval please.

Thanking you,

Yours faithfully,

For M/s Phoenix Spaces Private Limited

Authorised Signatory

Encl: Enclosures as attached.

Annexure - III

Rejected the proposals as the proposed section is not sufficient to carry the Flood discharge

Dy. Executive Engineer I & CADD., Irrigation Sub Division No. 4, Hyderabad

Executive Engineer, I&CAD., Irrigation Division No. 1, Red Hills, Hyderabad.

Phoenix Spaces Pvt. Ltd.

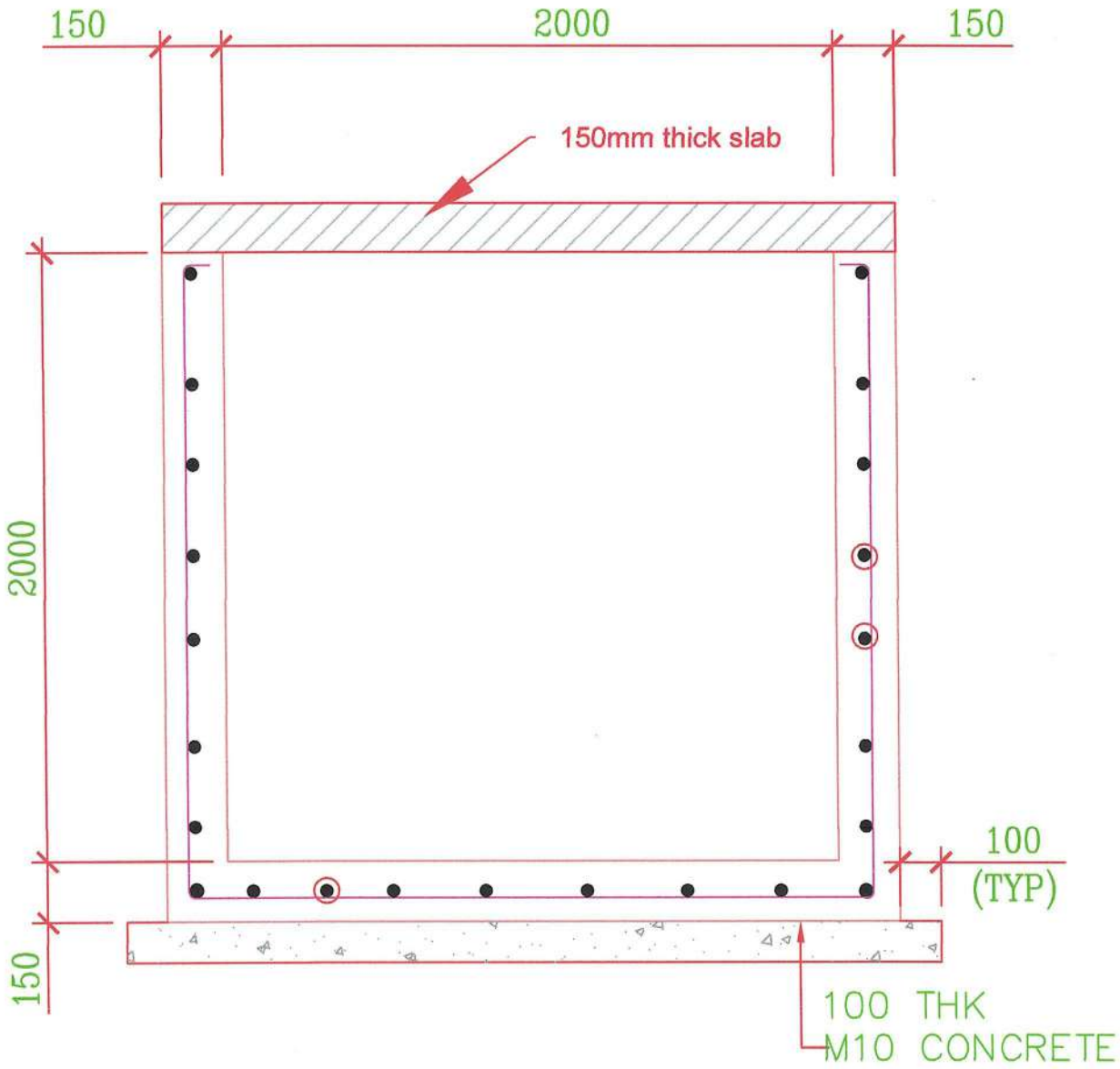
Plan showing box type storm water drain, situated at the development site in Survey Nos. 285, 286 and 287 of the Puppalguda Village, Gandipet mondal ,RR dist leading from the culvert to the Bulkapur Channel

SCALE: NTS

REV: R0,DATE: 12-02-2023

Annexure - IV

PROPOSED CROSS SECTION OF STORM WATER DRAIN FROM THE EXISTING CULVERT TO BULKAPUR NALA



TYP. SECTION FOR STORM WATER DRAIN
(FOR DEPTH UPTO 2000 MM)

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Dy. Executive Engineer I & CADD.,
Irrigation Sub Division No. 4, Hyderabad

Executive Engineer, I&CAD.,
Irrigation Division No. 1,
Red Hills, Hyderabad.

Annexure - V

PROJECT : Project @ 285 by M/s Phoenix Global Spaces Ltd.,
DESIGN OF STORM WATER DRAIN

Rational formula for calculating runoff Q = (C I A)

Q-Runoff in **m3/sec**

C- Co-efficient of **run off**

I - Intensity of rainfall in **mm/ hr.**

A - Drainage area in **sq.mtrs.**

Run-off co-efficient for various types of surfaces

Open grounds, unpaved street : 0.10 to 0.30

Parks,lawns, gardens : 0.10 to 0.25

Macadam roads, pavements : 0.25 to 0.70

Asphalt pavements : 0.85 to 0.90

Water tight roof surface : 0.90 to 0.95

Storm frequency

Intensity of precipitation.

Time of concentration

Manning's formula for calculating the size of drain (Q= A x V)

V = (1 x R2/3 x S1/2) / n

V = Velocity of flow in **m/sec.**

n = Co-efficient of friction, **0.013**

R = Hydraulic mean depth in mts. **R = A / P**

A = area of cross section in **m2**

(Top width + bottom width)/2xdepth of flow for trapezoidal Section

Bottom width x depth of flow for rectangular section

P = Wetted perimeter in meters

Bottom width + (2 x √2 x depth of flow) for trapezoidal section = B + 2 x √2 x D

Where D= depth of flow

Bottom width + 2 x depth of flow for rectangular section = B + 2D

S = Hydraulic bed slope.

Dy. Executive Engineer I & CADD,
Irrigation Sub Division No. 4, Hyderabad

Executive Engineer, I&CAD,
Irrigation Division No. 1,
Red Hills, Hyderabad.

Annexure - V

DESIGN

Intensity of rainfall "I" (in Cloud bursts condition)	**100 mm/hr**	
"C" Run-off coefficient for Roof area	0.9	
"C" Run-off coefficient for Hardscape area	0.7	
"C" Run-off coefficient for Softscape area.	0.4	
TOTAL CATCHMENT AREA	**153586.0**	**Sq Mts**

Total Plan/Roof Area	1,47,444 sq.mtr.	
Discharge = K = C x I x A1		
Hence,		
Discharge = K = 0.9 x 100 x 147444	3.69 cum/sec	
Total Hardscape Area	1,535 sq.mtr	
Discharge = L = C x I x A2		
Hence,		
Discharge = L = 0.7 x 100 x 1536	0.039 cum/sec	
Total Softscape Area	4,748 sq.mtr	
Discharge = M = C x I x A2		
Hence,		
Discharge = M= 0.4 x 100 x 4608	0.12 cum/sec	
Actual total run off Q = K+L+M	3.849 cum/sec	
Actual =	**3.90 cum/sec**	
Design of RCC drain Q = A x V		
Area of flow A = B x D		
Assume depth of flow for a rectangular drain ' D '	1.2	**1.20** mtrs.
Also assume breadth to depth ratio		**1.5**
So, breadth of drain = B = 1.50 D	1.8	**1.80** mtrs.
Area of flow = A = 1.50 x 1.20	2.16	2.16 Sqm.
Wetted perimeter = P = B + 2D	4.2	
Perimeter = P = 1.80 + 2 x 1.20		4.20 mtrs.
Wetted Radius = R = A / P	0.51	
Wetted Radius = R = 2.16 / 4.20		0.51 mtrs.

Manning's formula for calculating the size of drain

Mannings Formulae = **Q = (A X R2/3 X S1/2) / n** Where,

Slope of drain = S = 1 in 300	300
Mannings constant (friction coefficient) " n " for RCC Drains	0.018
Design Discharge = 1.50 x (0.46)^(2/3) x (1 / 300) ^(1/2) / 0.018)	**4.45 cum/sec**
Design Discharge is **4.45 Cum/Sec > 3.90 Cum/Sec**	**Hence Safe**

Calculated size :-

Width of drain is 1800 mm Depth of drain is 1800 mm (FSL : 1200 + Free Board: 600 mm)

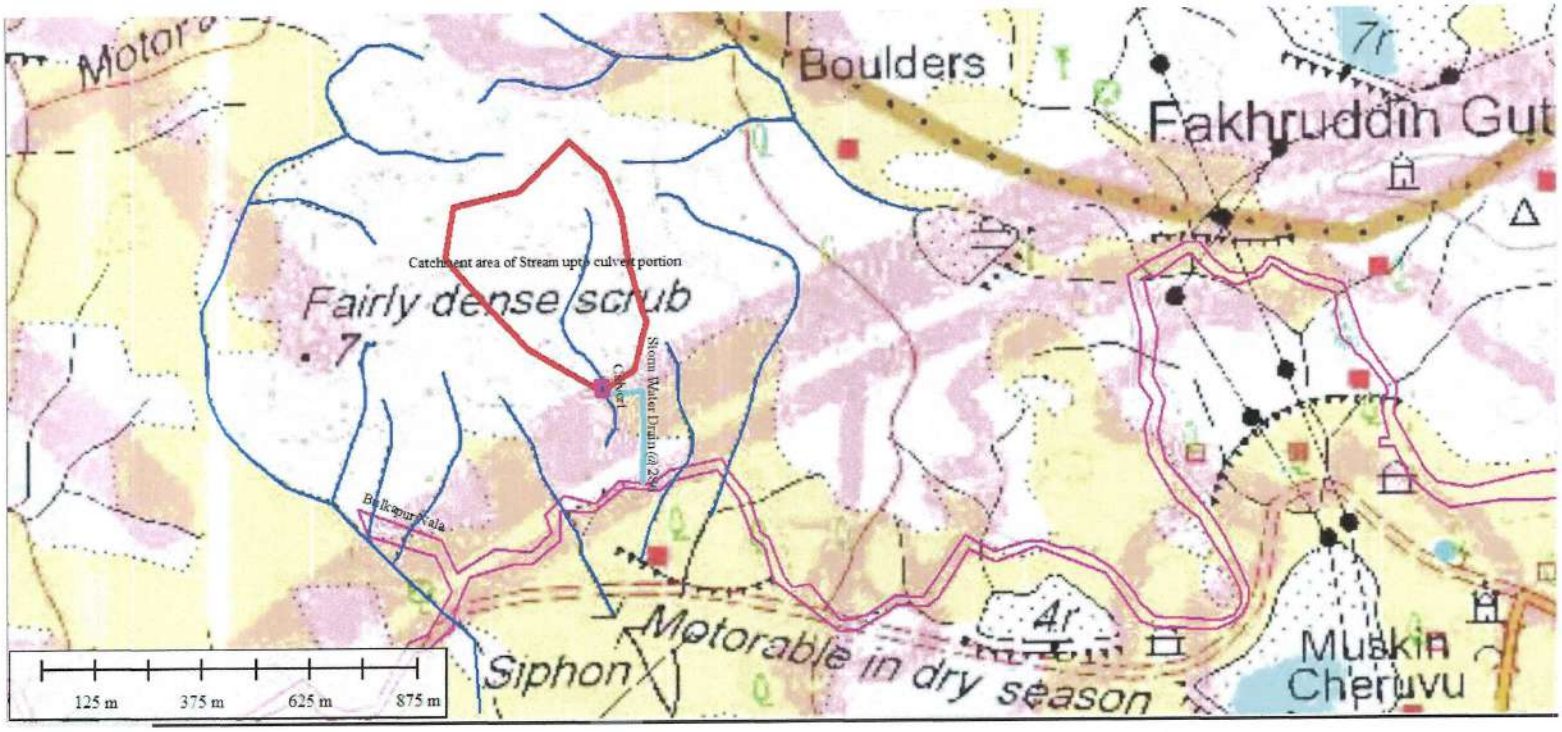
Hence, Proposed Section for Storm Water Drain is:		**2000mm X 2000mm**
	Velocity = V	**2.05 m/s**

Asst.Executive Engineer,
Irrigation Section, Gandipet

Dy.Executive Engineer,
Irr Sub Div No.4, Hyderabad

Executive Engineer, I&CADD.,
Irrigation Division No.1, Hyderabad

Overall Plan



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