

**REPORT OF COMMITTEE IN COMPLIANCE WITH THE ORDER OF  
HON'BLE NATIONAL GREEN TRIBUNAL, WESTERN BENCH, PUNE  
IN THE MATTER OF ORIGINAL APPLICATION NO. 104/2021 (WZ)  
ANANT RAMCHANDRA GHARAT VERSUS PUNE MUNICIPAL  
CORPORATION & ORS.**

**FOR SUBMISSION TO  
HON'BLE NATIONAL GREEN TRIBUNAL,  
WESTERN ZONE BENCH, PUNE  
AUGUST 2022**

**Joint Committee Report in the Matter of Original Application  
no.104/2021.**

**Anant Ramchandra Gharat**

**Applicant(s)**

**Versus**

**Pune Municipal Corporation & Ors**

**Respondent(s)**

**1.0 BACKGROUND:**

Hon'ble National Green Tribunal, Western Bench, Pune in the matter of OA No. 104/2021 (Anant Ramchandra Gharat, Applicant(s) Versus Pune Municipal Corporation & Ors. Respondent(s)) had passed order on 18.01.2022 as follows (**Please refer Annexure – I**),

*“The present Application is filed under Section 14 and Section 20 of the National Green Tribunal Act, 2010 invoking the „Precautionary Principle“ against the realignment and diversion of Ambil Odha stream, flowing round the year along a residential slum area located on final plot no. 28 and adjacent to final plot no. 2 B situated within survey nos. 133-135 Sadashiv Peth, Pune by diverting the existing course of Ambil Odha stream and realigning its natural flow in a different direction. The impugned realignment envisions the cutting off the stream from its present „U“ shape meandering around the said parcel of land across the original length of 402 meters and instead diverting the stream through the said parcel of land by means of excavation and digging of existing land, thereby reducing the length of Ambil Odha stream passing through the said parcel of land to approximately 201 meters from its original 402 meters. The said realignment is planned and work has been initiated by the Pune Municipal Corporation and Slum Rehabilitation Authority, Pune under the guise of “rechannelization” of Ambil Odha, by cutting, digging up and excavating of land situated on survey nos. 133-135 and diverting*

*the stream to cut straight through across the said parcel of land instead of meandering around the said parcel of land in its natural „U“ shaped layout. The said realignment is being undertaken without carrying out any proper hydrology and hydraulics study on the effects of the realignment/diversion on flooding in the area and such realignment of Ambil Odha substantially reduces the length of the natural stream and is likely to lead to flooding of the densely populated urban area of Sadashiv Peth, Pune.”*

We deem it just and proper to call a report on the matter in issue in present application, from a Joint Committee consisting of:-

- (i) The Representative of Pune Municipal Corporation;
- (ii) The Representative of Maharashtra Pollution Control Board;
- (iii) The Representative of Secretary, Environment Department, Maharashtra.

The Committee is directed to visit the place and submit a factual and action taken report within four weeks. The Maharashtra Pollution Control Board will be the nodal agency for coordination and logistic support.

## 2.0 SITE VISIT OF THE COMMITTEE:

In compliance with the aforesaid order of the Hon'ble NGT, a committee consist of the following members carried out visit on 12.05.2022 at Ambil Odha at S. N. 133, 1355, F.P. No. 28, Sadashiv Peth, Pune.

Sr. No.	Name & Designation	Department/Authority
1	Shri Sanjay Sandanshiv Scientist-II, Secretary (Technical),	Environment and Climate Change Department, GOM, Mumbai
2	Shri Shankar Waghmare, Regional Officer, Pune	Maharashtra Pollution Control Board, Pune
3	Pratap Jagtap Sub Regional Officer, Pune 1	Maharashtra Pollution Control Board, Pune
4	Phad Vilas, Executive Engineer, Drainage	Pune Municipal Corporation, Pune

### 3.0 Brief history of project.

The Ambil Odha is originated from South side of the Pune city, which further flow adjacent to Katraj village from South to North direction till the corner of Parvati hill and then flows in north west direction to meet the river Mutha, near Vaikunth crematorium in Pune city.

### 4.0 Present Status.

As per information submitted by PMC vide letter no. 1567 dtd. 12.08.2022. The total length of Ambil Odha from its originates to Confluence of Mutha River is approx. 11.50 Km (within old PMC limit) and approx.16 Km (within new PMC limit). **(Please refer Annexure – II)**

- Ambil Odha diversion work is started in November 2021 and stopped on December 2021, as per status quo order from Hon'ble Bombay High Court order dtd. 23.12.2021 in W.P. N. 7354 of 2021, which was filled by Kishor Manohar Kamble against Pune Municipal Corporation for challenging the straightening of the nalla in F.P. No. 28. Again, work commissioned after vacating status quo from Hon'ble Bombay High Court order dtd. 06.05.2022 (Interim Order) as below:- Copy of the Hon'ble Bombay High Court order dtd. 23.12.2021 & 06.05.2022 is attached herewith and annexed in **Annexure -III**.

*In view of the categorical statement in paragraph no. 14, above and in particular that in the Development Plans of 2017 the alignment of the nalla is also shown as straight line we are not inclined to continue the status quo order.*

*In view of the above and considering that the project is in public interest, we vacate the ad-interim order of status quo.*

- Applicant Shri Kishor Manohar Kamble has again filled application in Hon'ble Supreme Court by challenging Interim Order passed by Hon'ble Bombay High Court on 06.05.2022. Hon'ble Supreme Court vide order dtd. 02.06.2022 ordered as below:-

*Status quo which was operating before passing of the order impugned dtd. 06.05.2022 shall continue and let the High Court may decide the Writ Petition No. 7354/2021 on its own merits either on the date it is fixed for listing, i.e 23.06.2022 or any subsequent date expeditiously.*

- As per above Hon'ble Supreme Court order, matter is heard by the Hon'ble Bombay High Court on 21.07.2022 in Writ Petition No.7354/2021 and judgment is reserved. Copy of the order of Hon'ble Supreme Court, and Hon'ble Bombay High Court are attached herewith and annexed as **Annexure – IV**.
- As informed by PMC vide letter no. 1567 dtd. 12.08.2022 total 40 % excavation work is completed and excavated material approx. 2000 m3 disposed in unused quarry located at Yewalewadi, Pune.

#### 5.0 Point wise reply as per Original Application No. 104/2021

Point in the appeal	Description of the Point	Reply / Clarification
1.	It is submitted that the impugned Ambil Odha stream has been existence for several hundred years, since the time of the Maratha Empire in the 17 <sup>th</sup> Century. The Ambil Odha flows directly from the northern parts of Pune near Katraj through the city of Pune having a length of more than 16 Kilometers. The Ambil Odha originates near Katraj Lake and flows through Dhankawadi, Padmavati, Aranyeshwar, Parvati dasrhan	As informed by the Pune Municipal Corporation vide letter no. 1567 dtd 12.08.2022 ( <b>Please refer Annexure – II</b> ) The Ambil Odha is originated from South side of the Pune city, which further flow adjacent to Katraj village from South to North direction till the corner of Parvati hill and then flows in north west direction to meet the river Mutha, near Vaikunth crematorium in Pune city.

	through Dandekar Bridge, thereafter joining the Mutha river near Vaikuntha cremation ground in Navi Peth, Pune	The total length of Ambil Odha from its originates to Confluence of Mutha River is approx. 11.50 Km (within old PMC limit) and approx. 16 Km (within new PMC limit).
2.	Ambil Odha in its present from inter alia flows around the parcel of land situated on S. Nos. 133-135 of sadashiv peth, Pune, in a 'U' shaped layout, going all the way around the said parcel of land. A copy of an image displaying the current layout of Ambil Odha within the said Sy. Nos. 133-135 of sadashiv Peth.	The said Ambil Odha is flowing through S. No. 133-135, F.P.No.28 in a 'C' shaped or horse shoe shaped alignment for circumferential distance of approx. 402 meters. It is observed that surface storm water runoff from Gujarwadi, Nimbalkarwadi, Mangdewadi area flows downstream towards Katraj, and such rainwater collectively flows into Ambil Odha.
3.	It is submitted that rainwater from Gujarwadi, Nimbalkarwadi, Mangdewadi area flows downstream towards Katraj, and such rainwater collectively flows into Ambil Odha. Thereafter, the same Ambil Odha flows downstream through populated urban areas of Pune City.	
4.	It is submitted that there is a naturally downwards sloping gradient throughout substantial stretches of Ambil Odha, including the impugned stretch of Ambil Odha located along the said parcel of land. That the naturally designed meandering 'U' shaped layout of the impugned stretch of Ambil Odha acts as a barrier against intense flooding in the area. The velocity of the flowing water of the stream is	As informed by the Pune Municipal Corporation vide letter no. 1567 dtd 12.08.2022 (Please refer Annexure – II) The 'C' shaped or horse shoe shaped alignment nalla is entirely lies in S.No.135, F.P.No.28. The length of this existing nalla is approx. 402 meters (The nalla to be Straightened is also proposed in the same property and its proposed

	controlled sufficiently owing to its natural design, thereby leading to mitigation of flooding in this area.	length is 200 meters) (The horse shoe shaped nalla is in fact resisting flood water discharge to downstream, during high intensity rainfalls in the monsoon) the existing width of nalla through this meandering is 14-15 meters approximately in the upstream section between T-45 to T-40 and it is reducing to 10 meters from between T-41 to T-38 in the downstream section after the crest at T-41. Such meandering which is narrowing in the downstream part is obviously and resisting discharge of preventing flood waters from upstream catchment area to downstream to reach main Mutha river which is 1.5 km away from the meandering.
5.	It is submitted that river water naturally flows from upstream to downstream, from a higher gradient to a lower gradient. This therefore means that the downward sloping gradient along the impugned stretch of Ambil Odha makes this area particularly vulnerable to flooding.	As F.P. no. 28 is located in low laying area, approx. depth of nalla at this location is 2.5 mtrs, and this entire F.P no.28 is vulnerable to floods due to meandering and this has happened in 2019 floods, and at that time slums of F.P no. 28 were observed submerged under flood water. It seems that meandering is a key feature obstructing discharge of
6.	That the floods witnessed in Pune city in 2019 saw the entire area flooded and severe loss of property to the individuals residing in and around the said area, in addition to adverse impacts to marine biodiversity of Ambil Odha stream, the intensity and damage caused by the 2019 floods was considerably mitigated. That despite this, respondent no. 1 PMC has undertaken the realignment of Ambil Odha within the impugned stretch.	
7.	It is submitted that PMC and SRA have undertaken action to alter the natural flow of Ambil Odha by diverting the existing course of Ambil Odha and realigning it in a different direction, so that it may flow cutting through the said parcel of land.	

8.	<p>The said realignment is planned to be done by cutting, digging up and excavating of land situated on Sr. Nos. 133-135, and diverting the natural course of the stream to cut straight across the said parcel of land instead of meandering around the said parcel of land in its natural 'U' shaped layout.</p>	<p>flood water during high intensity of rainfalls.</p> <p>The existing meandering of the nalla covers almost 402 meters in length with lesser slope and width, which is causing flooding on upstream side of the F.P.No.28 due to poor flood discharge carrying capacity of the meandering of the nalla.</p>
9.	<p>It is pertinent to note that the Development plan 2017 of Pune Clearly marks and displays the original and natural 'U' shape of Ambil Odha flowing around the said parcel of land. A copy of the relevant extracts of the Development Plan of 2017 for Pune re annexed and marked herewith as Annexure A-2</p>	<p>The nalla straightening which is 200 meters in length will assist to discharge the flood waters to downstream to reach the river Mutha, earlier than the existence of meandering of nalla in F.P.No.28. Hence, PMC has decided to straighten the existing nalla from 'C' shaped or horse shoe shaped.</p> <p>The PMC has included this straightening of the 'C' shaped or horse shoe shaped nalla in F.P. No. 28 in draft town planning scheme 1943, the arbitrator appointed for this TP scheme has sanctioned the same on 09/04/1975, which was subsequently got final approval in sanctioned Town Planning Scheme 1989, also, in sanctioned development plan 1987 and 2017. Copy of arbitrator decision is annexed as <b>Annexure -V</b></p>

		<p>Before commencing the work of nalla diversion, the PMC has carried out hydraulic study through the Primove Consultants Pvt. Ltd.</p> <p>Primove Infrastructure Development Consultants Pvt. Ltd. is empaneled expert agency for various work related to water supply, storm water drainage and sewage drainage as per resolution no. 92 dated 26.04.2011 passed by Standing Committee of Pune Municipal Corporation.</p> <p>Due to speedy urbanization in the catchments of Ambil Odha, the flood discharge has been increased considerably and therefore it is needful to increase discharge capacity of nalla by straightening and increasing the width and depth of the nalla.</p>
10.	<p>However, Construction Department, PMC has written letter bearing no. Sh. A.o/J/3792 dated 14.06.2019 to the Municipal Commissioner, PMC stating that there is a requirement of rectification of linear errors for the property situated on Sr. Nos. 133-135, Sadashiv Peth, Pune as appearing in the approved Development plan 2017. The said letter accordingly states:</p>	<p>All the issues mentioned in the respective points 11 to 19 mentioned in OA 104/2021, has been put forward by the different petition No. WP/7354/2021 at the Hon'ble Bombay High Court, and accordingly, Hon'ble Bombay High Court issued following interim Orders on 06.05.2022 as below:</p>

	<p>"In this case, the owner Naiknavare Developers have informed in a written letter informing that there is a design error in the approved Development Plan for the year 2017. Accordingly, it is seen that the demarcation of the stream in the approved Development Plan of 1987 is not matching with the demarcation of the Development Plan of 2017. There is also a TPS-III drain outside the said property. In this case, according to the total station map, the demarcation of the property and the drains are in accordance with the TPS-III. However, it has been seen that the demarcation of drain shown in the approved Development Plan of 2017 does not match"</p> <p>A copy of the city Engineer's office, Construction Department, PMC letter bearing no. Sh. A.o/J/3792 dated 14.06.2019 to the Municipal Commissioner, PMC is annexed and marked herewith as Annexure-A-3 English Translation of Annexure A-3 is annexed and marked as Annexure A-4.</p>	<p><i>"In view of the categorical statement in paragraph no. 14, above and in particular that in the Development Plans of 2017 the alignment of the Nalla is also shown as straight line we are not inclined to continue the status quo order"</i></p> <p><i>"In view of the above and considering that the project is in public interest, we vacate the ad-interim order of status quo."</i></p> <p>Copy of the Hon'ble Bombay High Court order dtd. 23.12.2021 &amp; 06.05.2022 is attached herewith and annexed in <b>Annexure -III</b>.</p>
11.	It is further submitted that SRA and PMC have undertaken Joint Review Meetings Dated 21.04.20 and 9.05.20	As informed by the Pune Municipal Corporation vide letter no. 1567 dtd

	<p>wherein they have agreed to undertaken the realignment of Ambil Odha by stating that such is required to be so as to increase the scope of Slum Rehabilitation Scheme. SRA and PMC have termed this process of diversion of stream as 're-channelisation /straightening' of the stream.</p>	<p>12.08.2022 (Please refer Annexure – II)</p> <p>As per the Sanctioned Town Planning Scheme the Arbitrator has given decision in 1975 that the area of S. No. 135, 134 &amp; 3 is occupied by unauthorized hutment dwellers. The draft scheme proposal of straightening of nalla to S. No. 135 (now it is F. P. No. 28) is confirmed. The nalla lands so render not wanted nalla is converted into a large plot and allotted for low income group housing to the local authority. In 2017 Development Plan same is reserved for slum improvement scheme. The nalla straightening and slum rehabilitation is undertaken as per sanction T.P. 1989 &amp; D. P 2017.</p>
12.	<p>It is submitted that the PMC and SRA have held joint review meeting dated 21.04.20 and 29.05.20 wherein a decision was taken to inter alias realign Ambil Odha as well as amend 'draftsman error' in the demarcation of Ambil Odha passing though they said parcel of land. Accordingly, SRA have written letter dated 26.08.2020 to the Commissioner, PMC seeking authorization of proposal for 'rechannelisation / straightening' and amending the 'draftsman error', thereby changing the demarcations existing in the Development Plan of 2017. A copy of the SRA letter dated 25.08.2020 bearing outward no. 705 to the PMC is annexed and marked herewith as Annexure A-5 English Translation of Annexure A-5 is annexed and marked as Annexure A-6.</p>	

13.	<p>It is submitted that correction of 'Draftsman error' is done as per the provisions of Para 6.5.5 of the Development Control and Promotion regulation for Pune Municipal Corporation's 2017 ('DCPR 2017'). Such para 6.5.5 accordingly states:</p> <p style="padding-left: 40px;">"6.5.5 Drafting error- Draftsman errors which are required to be corrected as per actual situation on site or as per the city survey record or sanctioned layout etc. may be corrected by the Municipal Commissioner, after consultation with the Director of Town planning, Maharashtra State, Pune"</p>	<p>As informed by the Pune Municipal Corporation vide letter no. 1567 dtd 12.08.2022 <b>(Please refer Annexure – II)</b></p> <p>The PMC has included straightening of the 'C' shaped or horse shoe shaped alignment nalla in F.P. No. 28 in draft town planning scheme 1943, which has got final approval in sanctioned Town Planning Scheme 1989. Also, in sanctioned development plan 1987 and 2017, and accordingly work of straightening of nalla is commissioned by Pune Municipal corporation.</p>
3	<p>However, it is submitted that DCPR 2017 would not be applicable to such as amendment in the Development plan 2017, as an application for minor amendment to Development Plan 2017, s an application for minor amendment to Development Plan would have to be approved by the State Government as per the Provisions of section 91 of Maharashtra Regional and Town planning Act, 1966. The Applicant submits that the PMC has fraudulently attempted to</p>	<p>The draftsman error in this case is related to the correction in the position of existing nalla between boundary of F.P. No. 2B &amp; 28, but no orders has been given by PMC Commissioner till date with reference to draftsman error.</p>

	alter alignment of Ambil Odha and Divert its natural flow.	
15.	However, PMC has attempted to illegally amend the Development Plan of 2017 so that they may proceed with physical realignment, undertaken by excavation and digging up of the said parcel of land, and thereafter, divert natural, flow of Ambil Odha from its existing 'U' shape, to directly cut across the said parcel of land, thereby reducing the length of Ambil Odha from 402 Meters to 201 Meters.	
16.	It is further submitted that PMC has not undertaken any scientific hydrological and hydraulic assessment of the effects of physical realignment of Ambil Odha. The Applicant submits that Ambil Odha which flows throughout the year is downstream of various source of water originating in different parts of northern Pune and is vulnerable to flooding.	PMC vide letter no. 1567 dtd 10.08.2022 informed that they have carried out Hydrological and Hydraulic assessment through Primove Infrastructure Development Consultants Pvt. Ltd. Pune.  PMC was carried out details project report of flash flooding in entire Ambil Odha on 25 <sup>th</sup> sept. 2019.
17.	The Impugned stretch of Ambil Odha falls within a densely populated area: therefore, any changes in the hydrological nature of the area need to be thoroughly appraised and assessed prior to execution.	PMC has again carried out detailed specific area study for F.P.No.28 considering rainfall analysis for two-year period and 25 year period through Primove Infrastructure Development Consultants Pvt. Ltd.
18.	However, PMC and SRA have failed to carry out any scientifically rigorous	and accordingly Primove submitted

<p>study and appraisal of the effects of the impugned realignment. It is submitted that a 'Note on Hydraulic Design for Revised Alignment of Ambil Odha at Pune Petdth Parvati Survey no. 133, Final plot no. 135-2b is prepared by one 'PriMove India'. However, It is submitted to appraise the hydrological effects of the impugned realignment. It is further submitted that such note prepared by Primove India is only a preliminary document, which does not delve into the detailed hydrological effects of realignment, as well as the increase in like hood and intensity of floods. A copy of the 'note on Hydraulic Design for Revised Alignment Of Ambil Odha at Pune, Parvati Survey no. 133, Final plot no. 135-2B' prepared by 'Primove India' is annexed and marked herewith as Annexure A-7.</p>	<p>report to PMC on 02.07.2021, 21.12.2021, 07.01.2022 &amp; 02.03.2022.</p> <p>Copy of the same is attached herewith collectively and annexed as <b>Annexure -VI.</b></p>
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#### 6.0 Conclusion and Recommendation:

1. The straightening of the 'C' shaped or horse shoe shaped nalla in F.P. No. 28 in draft town planning scheme 1943, the arbitrator appointed for this TP scheme has sanctioned the same on 09/04/1975, which was subsequently got final approval in sanctioned Town Planning Scheme 1989, also, in sanctioned development plan 1987 and 2017. We may allow to PMC to carry out work of straightening of nalla subject to final outcome of Hon'ble Bombay High Court order in Writ Petition No.7354/2021.

2. PMC shall comply with the recommendations given by Primove Infrastructure Development Consultants Pvt. Ltd., in their Hydraulic Design reports.
3. PMC shall dispose excavated material generated during straightening work scientifically.
4. PMC shall replant all existing plants, affected due to straightening of nalla.



Shankar Waghmare,  
Regional Officer,  
MPC Board, Pune



Sanjay Sandanshiv,  
Scientist-II, Secretary (Technical),  
Environment and Climate Change  
Department, GOM, Mumbai



Pratap Jagtap,  
Sub Regional Officer, Pune 1  
MPC Board, Pune



Phad Vilas  
Executive Engineer, Drainage  
Pune Municipal Corporation, Pune

Place:- Pune

Date:- 12.08.2022.

Item No. 02

(Pune Bench)

**BEFORE THE NATIONAL GREEN TRIBUNAL  
WESTERN ZONE BENCH, PUNE**

(By Video Conferencing)

Original Application No.104/2021(WZ)

Anant Ramchandra Gharat

Applicant(s)

Versus

Pune Municipal Corporation &amp; Ors.

Respondent(s)

Date of hearing: 18.01.2022

**CORAM: HON'BLE MR. JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER  
HON'BLE DR. ARUN KUMAR VERMA, EXPERT MEMBER**

Applicant(s): Mr. Bhalchandra Supekar, Advocate

**ORDER**

1. The present Application is filed under Section 14 and Section 20 of the National Green Tribunal Act, 2010 invoking the 'Precautionary Principle' against the realignment and diversion of Ambil Odha stream, flowing round the year along a residential slum area located on final plot no. 28 and adjacent to final plot no. 2 B situated within survey nos. 133-135 Sadashiv Peth, Pune by diverting the existing course of Ambil Odha stream and realigning its natural flow in a different direction. The impugned realignment envisions the cutting off the stream from its present 'U' shape meandering around the said parcel of land across the original length of 402 meters and instead diverting the stream through the said parcel of land by means of excavation and digging of existing land, thereby reducing the length of Ambil Odha stream passing through the said parcel of land to approximately 201 meters from its original 402 meters. The said realignment is planned and work has been initiated by the Pune Municipal Corporation and Slum Rehabilitation Authority, Pune under the guise of "rechannelization" of Ambil Odha, by cutting, digging up and excavating of land situated on survey nos.

133-135 and diverting the stream to cut straight through across the said parcel of land instead of meandering around the said parcel of land in its natural 'U' shaped layout. The said realignment is being undertaken without carrying out any proper hydrology and hydraulics study on the effects of the realignment/diversion on flooding in the area and such realignment of Ambil Odha substantially reduces the length of the natural stream and is likely to lead to flooding of the densely populated urban area of Sadashiv Peth, Pune.

2. A substantial question relating to the environment has been raised by the Applicant.
3. Issue notice to the Respondents. Returnable within four weeks.
4. Applicant is directed to provide copy of the application and relevant documents to the respondents within a week.
5. Respondents are directed to submit their reply/counter affidavit within six weeks.
6. Applicant is also directed to take necessary steps for service to the respondents by both ways and also on available email.
7. We deem it just and proper to call a report on the matter in issue in present application, from a Joint Committee consisting of:-
  - (i) The Representative of Pune Municipal Corporation;
  - (ii) The Representative of Maharashtra Pollution Control Board;
  - (iii) The Representative of Secretary, Environment Department, Maharashtra.
8. The Committee is directed to visit the place and submit a factual and action taken report within four weeks. The Maharashtra Pollution Control Board will be the nodal agency for coordination and logistic support.

9. The report in the matter be filed by the Committee by e-mail at ngt-pune@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.

10. Applicant is directed to supply the required documents and copy of the application to the members of the Committee within a week.

Put up with the report on 24.03.2022.

Sheo Kumar Singh, JM

Dr. Arun Kumar Verma, EM

January 18, 2022  
Original Application No.104/2021(WZ)  
JG

Date:10/08/2022

To,  
S.R.O. PUNE  
Jog center, 3<sup>rd</sup> floor,  
Wakadewadi,  
Pune-411003

**Sub: Report in the Matter of Original Application no.104/2021**

**1. Background**

- The Ambil Odha is originated from south of the city, katraj lake, flows south to north till the corner of Parvati hill and then flows in north west direction to meet the river mutha, near vaikunth crematorium.
- In September 2019, high flood affected in pune at ambil odha nala area. Pmc has appointed Primove Infa Structure Development Consultants Pvt.Ltd to survey Ambil odha Primove Infa Structure Development pvt ltd submitted report in 2019.
- At Parvati F.P.no 28 Ambil Odha flowing in C shape which causes flooding in that area. PMC decided to straightening nala in F.P. 28 Parvati.
- The said Ambil Odha is flowing through F.P.No.28 in meandering sharply for a circumferential distance of approx. 402 meters.

**2. Details of Project along with width, length, depth. Slope and cross section.**

Primove Report is enclosed

**3. Present Status.**

PMC has given work order to contractor for excavation work order dated 28/10/2021 Annexure 5 & accordingly work started in Nov 2021.

In present 30 % of excavation is completed which has been done till December 2021, till status quo order from hom' ble High court and after status quo vacated from high court on 06-05-2022.

Then work started 10% excavation work done still status quo passed by Hon. Supreme Court on dated 02/06/2022.

Total excavation to be done approx. 20,000 m<sup>3</sup>. Still date excavation 40% approx done. Excavated material 2000 m<sup>3</sup> approx. Shifted to Yevlewadi unuse quarry.

PMC is going to construct retaining wall on both side of nala after straightening of nala.

## 4. Point wise reply as per application 104/2021

Point in the appeal	Description of the Point	Reply / Clarification
1.	It is submitted that the impugned Ambil Odha stream has been existence for several hundred years, since the time of the Maratha Empire in the 17th Century. The Ambil Odha flows directly from the northern parts of Pune near Katraj through the city of Pune having a length of more than 16 Kilometers. The Ambil Odha originates near Katraj Lake and flows through Dhankawadi, Padmavati, Aranyeshwar, Parvati dasrhan through Dandekar Bridge, thereafter joining the Mutha river near Vaikuntha cremation ground in Navi Peth, Pune	The Ambil Odha is originated from South side of the Pune city, which further flow adjacent to Katraj village from South to North direction till the corner of Parvati hill and then flows in north west direction to meet the river Mutha, near Vaikunth crematorium in Pune city. The total length of Ambil odha from its originates to Confluence of Mutha River is approx 11.50 Km. (within old PMC limit) and 16 km approx. within new PMC limit (Annexure-1)
2.	Ambil Odha in its present from inter alia flows around the parcel of land situated on S. Nos. 133-135 of sadashiv peth, Pune, in a 'U' shaped layout, going all the way around the said parcel of land. A copy of an image displaying the current layout of Ambil Odha within the said Sy. Nos. 133-135 of sadashiv Peth.	The said Ambil odha is flowing through S. No. 133-135, F.P.No.28 in a 'C' shaped or horse shoe shaped alignment for circumferential distance of approx. 402 meters. It is observed that surface storm water runoff from Gujarwadi, Nimbalkarwadi, Mangdewadi area flows downstream towards Katraj, and such rainwater collectively flows into Ambil odha.
3.	It is submitted that rainwater from Gujarwadi, Nimbalkarwadi, Mangdewadi area flows downstream towards Katraj, and such rainwater collectively flows into Ambil Odha. Thereafter, the same Ambil Odha flows downstream through populated urban areas of Pune City.	

4.	<p>It is submitted that there is a naturally downwards sloping gradient throughout substantial stretches of Ambil Odha, including the impugned stretch of Ambil Odha located along the said parcel of land. That the naturally designed meandering 'U' shaped layout of the impugned stretch of Ambil Odha acts as a barrier against intense flooding in the area. The velocity of the flowing water of the stream is controlled sufficiently owing to its natural design, thereby leading to mitigation of flooding in this area.</p>	<p>The 'C' shaped or horse shoe shaped alignment Nalla is entirely lies in S.No.135, F.P.No.28. The length of this existing Nalla is approx. 402 meters (The Nalla to be Straightened is also proposed in the same property and its proposed length is 200 meters. The horse shoe shaped Nalla is in fact resisting flood water discharge to downstream, during high intensity rainfalls in the monsoon) the existing width of Nalla through this meandering is 14-15 meters approximately in the upstream section between T-45 to T-40 and it is reducing to 10 meters from between T-41 to T-38 in the downstream section after the crest at T-41. Such meandering which is narrowing in the downstream part is obviously and resisting discharge of preventing flood waters from upstream catchment area to downstream to reach main Mutha river which is 1.5 km away from the meandering.</p> <p>As F.P. no. 28 is located in low laying area, appro. depth of nalla at this location is 2.5 mts, and this entire FP no.28 is vulnerable to floods due to meandering and this has happened in 2019 floods, and at that time slums of FP no.28 were observed submerged under flood waters. It seems that meandering is a key feature obstructing discharge of flood waters during high intensity of rainfalls.</p>
5.	<p>It is submitted that river water naturally flows from upstream to downstream, from a higher gradient to a lower gradient. This therefore means that the downward sloping gradient along the impugned stretch of Ambil Odha makes this area particularly vulnerable to flooding.</p>	<p>The existing meandering of the nalla covers almost 402 meters in length with lesser slope and width, which is causing flooding on upstream side of the F.P.No.28 due to poor flood discharge carrying capacity of the meandering of the nalla.</p>
6.	<p>That the floods witnessed in Pune city in 2019 saw the entire area flooded and severe loss of property to the individuals residing in and around the said area, in addition to adverse impacts to marine biodiversity of</p>	<p>The nalla straightening which is</p>

	Ambil Odha stream, the intensity and damage caused by the 2019 floods was considerably mitigated. That despite this, respondent no. 1 PMC has undertaken the realignment of Ambil Odha within the impugned stretch.	200 meters in length will assist to discharge the flood waters to downstream to reach the river Mutha, earlier than the existence of meandering of Nala in F.P.No.28. Hence, PMC has decided to straighten the existing nalla from C shape.
7.	It is submitted that PMC and SRA have undertaken action to alter the natural flow of Ambil Odha by diverting the existing course of Ambil Odha and realigning it in a different direction, so that it may flow cutting through the said parcel of land.	The PMC has included this straightening of the 'C' shaped or horse shoe shaped alignment nalla in F.P. No. 28 in draft town planning scheme 1943, which has got final approval in sanctioned Town Planning Scheme 1989. Also, in sanctioned development plan 1987 and 2017. Copies of the all approved sanctioned TP scheme and DP plans along with chronology are attached herewith in <b>Annexure -2</b>
8.	The said realignment is planned to be done by cutting, digging up and excavating of land situated on Sr. Nos. 133-135, and diverting the natural course of the stream to cut straight across the said parcel of land instead of meandering around the said parcel of land in its natural 'U' shaped layout.	
9.	It is pertinent to note that the Development plan 2017 of Pune. Clearly marks and displays the original and natural 'U' shape of Ambil odha flowing around the said parcel of land. A copy of the relevant extracts of the Development Plan of 2017 for Pune re annexed and marked herewith as Annexure A-2	The PMC before commencing the nalla diversion has carried out hydraulic study through the Primove Infrastructure Development Consultants Pvt. Ltd. is empaneled expert agency for various work related to water supply, storm water drainage and sewage drainage as per resolution no. 92 dated 26.04.2011 passed by Standing Committee of Pune Municipal Corporation. PMC has given work order dated 23/01/2020 to do survey of ambil odha. Due to speedy urbanization in the catchments of Ambil Odha, the flood discharge has been increased considerably and therefore it is needful to increase discharge capacity of nalla by straightening and increasing the width and depth of the nalla.

10.	<p>However, Construction Department, PMC has written letter bearing no. Sh. A.o/J/3792 dated 14.06.2019 to the Municipal Commissioner, PMC stating that there is a requirement of rectification of linear errors for the property situated on Sr. Nos. 133-135, Sadashiv Peth, Pune as appearing in the approved Development plan 2017. The said letter accordingly states:</p> <p>“In this case, the owner Naiknavare Developers have informed in a written letter informing that there is a design error in the approved Development Plan for the year 2017. Accordingly, it is seen that the demarcation of the stream in the approved Development Plan of 1987 is not matching with the demarcation of the Development Plan of 2017. There is also a TPS-III drain outside the said property. In this case, according to the total station map, the demarcation of the property and the drains are in accordance with the TPS-III. However, it has been seen that the demarcation of drain shown in the approved Development Plan of 2017 does not match”</p> <p>A copy of the city Engineer’s office, Construction Department, PMC letter bearing no. Sh. A.o/J/3792 dated 14.06.2019 to the Municipal Commissioner, PMC is annexed and marked herewith as Annexure-A-3 English Translation of Annexure A-3 is annexed and marked as Annexure A-4.</p>	<p>All the issues mentioned in the respective points 11 to 19 mentioned in OA 104/2021, has been put forward by the different petition No. WP/7354/2021 at the Hon’ble Bombay High Court, and accordingly, Hon’ble Bombay High Court issued following interim Orders on 06.05.2022 as below:</p> <p>3. In view of the categorical statement in paragraph no. 14, above and in particular that in the Development Plans of 2017 the alignment of the Nalla is also shown as straight line we are not inclined to continue the status quo order.</p> <p>4. In view of the above and considering that the project is in public interest, we vacate the ad-interim order of status quo.</p> <p>Copy of the order dtd. 06.05.2022 is attached herewith and annexed in Annexure -</p>
11.	<p>Therefore, PMC has alleged that the layout of stream of Ambil Odha has been erroneously demarcated in the development Plan of 2017, and accordingly, the stretch of Ambil Odha passing through the said parcel of land needs to be realigned.</p>	

12.	It is further submitted that SRA and PMC have undertaken Joint Review Meetings Dated 21.04.20 and 9.05.20 wherein they have agreed to undertaken the realignment of Ambil Odha by stating that such is required to be so as to increase the scope of Slum Rehabilitation Scheme. SRA and PMC have termed this process of diversion of stream as 're- chaneli sation /straightening' of the stream.	As per the Sanctioned Town Planning Scheme the Arbitrator has given decision in 1975 that the area of S. No. 135, 134 & 3 is occupied by unauthorized hutment dwellers. The draft scheme proposal of straightening of nalla to S. No. 135 (now it is F. P. No. 28) is confirmed. The nalla lands so render not wanted nalla is converted into a large plot and allotted for low income group housing to the local authority. In 2017 Development Plan same is reserved for slum improvement scheme. The nalla straightening and slum rehabilitation is undertaken as per sanction T.P. 1989 & D. P 2017.
13.	It is submitted that the PMC and SRA have held joint review meeting dated 21.04.20 and 29.05.20 wherein a decision was taken to inter alias realign Ambil Odha as well as amend 'draftsman error' in the demarcation of Ambil Odha passing though they said parcel of land. Accordingly, SRA have written letter dated 26.08.2020 to the Commissioner, PMC seeking authorization of proposal for 'rechannelisation / straightening' and amending the 'draftsman error', thereby changing the demarcations existing in the Development Plan of 2017. A copy of the SRA letter dated 25.08.2020 bearing outward no. 705 to the PMC is annexed and marked herewith as Annexure A-5 English Translation of Annexure A-5 is annexed and marked as Annexure A-6.	Copy of the Sanction Town Planning Scheme the Arbitrator decision 1975 is attached herewith and annexed as Annexure -
14.	It is submitted that correction of 'Draftsman error' is done as per the provisions of Para 6.5.5 of the Development Control and Promotion regulation for Pune Municipal Corporation's 2017 ('DCPR 2017'). Such para 6.5.5 accordingly states: "6.5.5 Drafting error- Draftsman errors which are required to be corrected as per actual situation on site or as per the city survey record or sanctioned layout etc. may be corrected by the Municipal Commissioner, after consultation with the Director of Town planning, Maharashtra State, Pune"	The draftsman error in this case is related to the correction in the position of existing nalla between bound aryof F.P. No. 2B & 28, but no orders has been given by PMC Commissioner till date with reference to draftsman error.  The PMC has included straightening of the 'C' shaped or horse shoe shaped alignment nalla in F.P. No. 28 in draft town planning scheme 1943, which has got final approval in sanctioned Town Planning Scheme 1989, also, in sanctioned development plan 1987 and 2017, and accordingly work of

15.	However, it is submitted that DCPR 2017 would not be applicable to such as amendment in the Development plan 2017, as an application for minor amendment to Development Plan 2017, s an application for minor amendment to Development Plan would have to be approved by the State Government as per the Provisions of section 91of Maharashtra Regional and Town planning Act, 1966. The Applicant submits that the PMC has fraudulently attempted to alter alignment of Ambil Odha and Divert its natural flow.	straightening of nalla is commissioned by Pune Municipal corporation.
16.	The Applicant has annexed as well as Development Plan of 2017 extracts, which clearly show that the demarcation of Ambil Odha has been correctly done.	
17.	However, PMC has attempted to illegally amend the Development Plan of 2017 so that they may proceed with physical realignment, undertaken by excavation and digging up of the said parcel of land, and thereafter, divert natural, flow of Ambil Odha from its existing 'U' shape, to directly cut across the said parcel of land, thereby reducing the length of Ambil Odha from 402 Meters to 201 Meters.	
18.	It is further submitted that PMC has not undertaken any scientific hydrological and hydraulic assessment of the effects of physical realignment of Ambil Odha. The Applicant submits that Ambil Odha which flows throughout the year is downstream of various source of water originating in different parts of northern Pune, and is vulnerable to flooding.	PMC have carried out Hydrological and Hydraulic assessment through Primove Infrastructure Development Consultants Pvt. Ltd. Pune. PMC was carried out details project report of flash flooding in entire Ambil Odha on 25th sept. 2019. PMC has again carried out detailed specific area study for F.P.No.28 considering rainfall analysis for two-year period and 25 year period through Primove Infrastructure Development Consultants Pvt. Ltd. and accordingly Primove submitted report to PMC on 02.07.2021, 21.12.2021, 07.01.2022 &
19.	The Impugned stretch of Ambil Odha falls within a densely populated area: therefore any changes in the hydrological nature of the area need to be thoroughly appraised and assessed prior to execution.	

20.	<p>However, PMC and SRA have failed to carry out any scientifically rigorous study and appraisal of the effects of the impugned realignment. It is submitted that a 'Note on Hydraulic Design for Revised Alignment of Ambil Odha at Pune Petdth Parvati Survey no. 133, Final plot no. 135-2b is prepared by one 'PriMove India'. However, It is submitted to appraise the hydrological effects of the impugned realignment. It is further submitted that such note prepared by Primove India is only a preliminary document, which does not delve into the detailed hydrological effects of realignment, as well as the increase in like hood and intensity of floods. A copy of the 'note on Hydraulic Design for Revised Alignment Of Ambil Odha at Pune, Parvati Survey no. 133, Final plot no. 135-2B' prepared by 'Primove India' is annexed and marked herewith as <del>Annexure A-7</del>.</p>	<p>02.03.2022. Copy of the same is attached herewith collectively and annexed as Annexure -</p>
21.	<p>The applicant has submitted a letter in this regards on 30th September 2021 to the Commissioner, PMC and also to the CEO, SRA. A copy of letter submitted to the Commissioner PMC is attached and annexed herewith at the ANNEXURE A-10. Also copy of letter submitted to the CEO, SRA is attached and annexed herewith at the <del>ANNEXURE A-11</del>.</p>	

Technical study was done by concerned experts have clearly opined that due to the straightening of nala, the flood carrying capacity would be enhanced to 672 cum/sec from the existing capacity of 146 cum/sec. The true copy of reports dated 02/07/2021. Is attached .



Santosh Tandale

Superintending Engineer

Sewerage operation & maintainance 

 Pune Municipal Corporation 

Y.S.Patil

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**IN THE HIGH COURT OF JUDICATURE AT BOMBAY  
CIVIL APPELLATE JURISDICTION**

**WRIT PETITION NO. 7354 OF 2021**

Kishor Manohar Kamble and Anr. .. Petitioner  
V/s

Pune Municipal Corporation through  
Commissioner and Ors. .. Respondents

\*\*\*\*\*

Ms. Gayatri Singh., Sr. Advocate i/b Ms. Meenaz Kakalia  
for Petitioners.

Mr. Vishwanath Patil with Mr. Kewal Ahya and Mr. Ankit  
Lodha, for Respondents No.1 and 2-Pune Municipal  
Corporation.

Mr. R. A. Salunke, AGP- Respondents.

Mr. Deepak R. More with Mr. Shivram A. Gawade,  
Advocate for Respondents No.5.

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**CORAM: A. A. SAYED &  
ABHAY AHUJA, JJ.**

**DATE : 23<sup>rd</sup> DECEMBER, 2021.**

**P.C. :-**

1. The Petitioners' grievance is that Respondent No.1-  
Corporation is in the process of altering alignment of the  
natural stream known as the Ambil Odha within the city of  
Pune by straightening the alignment and thereby affecting  
the natural curved alignment of the stream.

2. We have heard learned Counsel for the parties for some time. We note that in the Report of PriMove Infrastructure Development Consultants Pvt Ltd dated April 2020 it is interalia recommended in clause 6.1- 'Avoid diverting natural nella's/ stream' (page 94 of the Petition).

*gent. med part.*  
3. Until the next date, status-quo as of today in respect of the work of straightening the alignment of the stream shall be maintained.

*मा*  
4. List the Petition on 10<sup>th</sup> January 2022.

*मा*

*Sd/-*  
(ABHAY AHUJA, J.)

*Sd/-*  
(A. A. SAYED, J.)

श्री विभाग  
क्र. नं./दिनांक/व्य. *YRCE*  
17 JAN 2022  
पुणे महानगरपालिका  
अज्ञेवर

*04/01/2022*  
पुणे महानगरपालिका  
आयुक्त कार्यालय

प्रशासन अधिकारी,  
महापालिका आयुक्त कार्यालय  
पुणे महानगरपालिका  
- मुख्य निदेशिका

महापालिका आयुक्त कार्यालय  
पुणे महानगरपालिका  
आवक क्र. 6279- 17 JAN 2022  
जाचक क्र. 5948- 17 JAN 2022

*लेखक काटी लायें.*

**IN THE HIGH COURT OF JUDICATURE AT BOMBAY  
CIVIL APPELLATE JURISDICTION**

**WRIT PETITION NO. 7354 OF 2021**

Kishor Manohar Kamble ...Petitioner  
Versus  
Pune Municipal Corporation & Ors. ...Respondents

Ms. Meenaz Kakalia for the Petitioner.  
Mr. Vishwanath Patil a/w Mr. Keval Ahya and Ms. Shruti Potnis for Respondent Nos.1 and 2-PMC.  
Mr. Onkar Gawade i/b. Jaydeep Deo for Respondent No.6.  
Mr. Deepak R. More a/w Mr. Shivram A. Gawade for Respondent for the Respondent No. 5  
Mr. A. A. Kumbhakoni, AG a/w Mr. P. P. Kakade, GP and Mr. A. I. Patel, Addl GP for Respondents-State.

**CORAM :** A. A. SAYED &  
ABHAY AHUJA, JJ

**DATED :** 06<sup>th</sup> MAY, 2022

**P.C.:**

On 26<sup>th</sup> April, 2022 we have passed the following order:

1. We direct the Respondent No.4-Deputy Director of Town Planning to file a comprehensive Affidavit-in-Reply after going through the Writ Petition as well as the Affidavit-in-Reply filed by the Respondent-Corporation and the Affidavit-in-Reply filed by the Respondent-Developer. The Affidavit-in-Reply shall deal with the Writ Petition parawise and clarify the position whether in the Draft Development Plan of 2013 and sanctioned Development Plan of 2017 for Pune city, the Ambil Odha stream (nala) flowing through a portion of Survey No.135, final plot No.28, is shown as 'straight' or 'curved'

2. The Affidavit-in-Reply shall also indicate whether there is any draftsman's error in the Development Plans as contended by the Respondents-Corporation. If there is indeed a draftsman's error, whether, (1) the draftsman's error is approved by him as per Regulation 6.5.5 of DCPR 2017, and (2) the modification/changes are sanctioned and published by the State Government by issuing Notification in the Official Gazette. The Affidavit-in-Reply shall also deal with the contention of the Petitioner that the Development Plan of 2017 would override the Town Planning Scheme 1987 and also indicate whether there is any variance in the Development Plan of 2017 vis-a-vis the ground situation in relation to the nala.

3. We are told that the Respondent-Developer is implementing a Slum Scheme and carrying out work of STP Project and majority of the slum dwellers have already been shifted.

4. Having regard to the controversy and public interest involved, we request the learned Advocate General to appear in the matter. The Additional Government Pleader states that he would ensure that the Director of Town Planning meets the learned Advocate General within 2-3 days and the Affidavit-in-Reply is filed before the next date with a copy to the Advocate for all the parties.

5. Stand over to 2 May 2022 at 2.30 p.m.

6. The ad-interim relief granted earlier to continue till the next date.

7. We make it clear that the proceedings before the NGT shall proceed without being influenced by the orders passed in the present proceedings.

2. Pursuant to the aforesaid order, Affidavit-in-Reply has been filed by the Director of Town Planning & Valuation Department.

The relevant portion of the Affidavit-in-Reply reads as follows:

3. I say that I have briefly discussed the matter with the Hon'ble Advocate General and have gone through the Writ Petition as well as the Affidavit-in-Reply filed by the Respondent-Corporation and the Affidavit-in-Reply filed by the Respondent-Developer and also the records available in this office in relation to the various aspects mentioned therein and based on the same, I am filing this affidavit.
4. I say that the then Government of Bombay vide Notification No.GD529/33, Dated 01.04.1943 had sanctioned the Draft Town Planning Scheme, Pune No.III submitted by the then Pune Municipality under section 14(2) and section. 29 of Bombay Town Planning Act, 1915. This Act of 1915 was replaced by Bombay Town Planning Act, 1954 on 01.04.1957. As per the section 90 of Bombay Town Planning Act, 1954, the Arbitrator was appointed for this Town Planning Scheme, Pune No.III.
5. I further say that the then Act of 1954 has been replaced by Maharashtra Regional and Town Planning Act, 1966. (hereinafter referred to as 'the Act' for brevity). As per the provisions of the Act, the Arbitrator, on the suggestions and objections received with him has given a decision on 09.04.1975 regarding F.P. No.29, 28, 27 & 2 of this Town Planning Scheme. In para no. 2 of such decision, it is mentioned as follows -
- “.....Draft Scheme proposal of straightening of the Nala through S.No.135 is confirmed. The Nala land so rendered not wanted for Nala is converted into a large plot and allotted for low-income group housing to the local authority, .....”
- The copy of the said decision is annexed herewith and marked as EXHIBIT-R-1.
6. I say that, in the statement showing the cost of the scheme, the said proposal of nala diversion has been included and sum of Rs.1,20,000/- is indicated towards the cost of such nala diversion. Thus, the proposal of nala diversion has formed an integral part of the Town Planning Scheme. The copy of the said Statement is annexed herewith and marked as EXHTBIT-R-2.

7. I say that, thereafter, the said Draft Town Planning Scheme has been sanctioned by Government in Urban Development Department vide Notification No.TPS-1885-3225/CR329/85-UD-13, dated 15.7.1989 and the same has come into force with effect from 15.9.1989. The copy of the said Notification is annexed herewith and marked as EXHIBIT-R-3.

8. I say that, thus, the diversion of nala for straightening the same is a component of Final Town Planning Scheme, which has already come in force long back and the said proposal of nala straightening has been continued in the subsequent proposals of sanctioned Development Plans of year 1987 and 2017 as well. The said proposal of straightening of nala in the sanctioned Town Planning Scheme 1989 and the proposal of the Development Plan of 2017 are in consonance with each other and there is no variation in the Development Plan of the 2017 with respect to the proposal of sanctioned Town Planning Scheme as far as the straightening of the said nala is concerned. Therefore, the contention of petitioners that the Development Plan of 2017 would override the Town Planning Scheme of 1989 is irrelevant.

9. I say that the said nala in the horse-shoe shape is existing on site, which can be revealed from the Google Image. However, in as much as the boundary between the F.P.No. 2B & 28 is concerned the position of the existing nala in the sanctioned Development Plan of 2017 is not correctly shown. In view of this, the correction in the position of the nala qua the boundary between the F.P.No. 2B & 28 is sought for as per the provisions of Note No.1 of Notification of the sanctioned Development Plan of 2017. The copy of the Google Image showing alignment of existing nala is annexed herewith and marked as EXHIBIT-R-4.

10. I say that the Note No.1 is an integral part of notification of sanctioned Development Plan of 2017 which empowers Commissioner, Pune Municipal Corporation to rectify such error. In such circumstances, the provisions of regulation no.6.5.5 of the then DCPR, 2017 are not attracted.

This is made clear vide Govt. letter dated 23.12.2021 addressed to this respondent in similarly placed case. The copy of the said letter is attached and marked as EXHIBIT-R-5.

11. I say that the proposals of Town Planning Scheme and Development Plan of year 2017 have gained finality after going through the legal procedure as laid down in the said Act. The proposal of straightening of nala is being undertaken by Pune Municipal Corporation as per the alignment shown in the sanctioned Town Planning Scheme as well as Development Plan of 2017. There is no deviation being sought by Pune Municipal Corporation in the said alignment. As such, there is no question of undertaking modification proposal u/s 37 of the said Act in the said Development Plan of year 2017 in this regard.

12. I say that, as per the provisions of section 90 (1) of the said Act, it is mandatory on Planning Authority to execute the proposals of final sanctioned Town Planning Scheme. The Planning Authority i.e. Pune Municipal Corporation is executing the same.

13. I say that the order dated 05.11.2020 by Commissioner, Pune Municipal Corporation questioned by the petitioners is related to altogether different issue and has no bearing on the proposal in the sanctioned Town Planning Scheme regarding the straightening of nala.

14. I say that, in the sanctioned Town Planning Scheme as well as sanctioned Development Plan in year 1987, the proposed alignment of said nala is shown straight and not curved. However, in the sanctioned Development Plan in year 2017, both the alignments of nala i.e. existing (horse-shoe shaped) as well as proposed (proposed means as per the sanctioned Town Planning Scheme) have been shown. In fact, there was no propriety in showing the existing (horse-shoe shaped) alignment of the said nala on the sanctioned Development Plan of 2017. Such errors are rectifiable by the Commissioner as per Note No.1 of the sanctioned Notification of sanctioned Development Plan of 2017. The

Note No.1 mentions as follow-

'Note:- 1) The Commissioner may correct the draftsman's error on Development Plan in respect of topographical errors in S.No/ G.No./ C.T.S. No./ FR No., errors in boundaries of such land parcels, errors in showing alignment of existing Nalas, river, Canal, lake and like water bodies, etc. by taking into account a Revenue/Land record or as the case may be, the record of concerned Town Planning Scheme. Provided that the Commissioner after due verification and satisfying himself regarding such error, shall issue a written, well-reasoned, speaking order modifying Development Plan to that effect and copy of such order in original shall be forwarded to the Government in Urban Development Department and Director of Town Planning, Maharashtra State, Pune for record"

15. I say that it is not the case that by virtue of the impugned action of the Corporation, the alignment of nala in the sanctioned Development Plan of 2017 is getting changed, in as much as straightening of the nala is concerned.

16. I say that, since such errors are required to be rectified only to ensure that the ground elements are represented on the sanctioned Development Plan as they exist as per revenue/land records/Sanctioned Town Planning Scheme, these do not amount to be modifications u/s 37 of the said Act as contended by the petitioners. This aspect does not have any consequence on the proposal of sanctioned Town Planning Scheme as well as sanctioned Development Plan of 2017 in respect of alignment of nala.

17 I say that it is misconception of the petitioners that the proposal of the straightening of the nala was not shown in the draft Development Plan of 2013 published u/s 26 of the said Act. The detailed perusal of the said published plan clearly indicates that the said proposal of straightening of nala is shown. Due to the overlapping of the alignment of

HCMTR over that of nala, the petitioners seem to have misinterpreted. In fact, a close look of the Development Plan reveals that the text 'NALA' is written in the said portion which confirms the existence of the proposal of nala straightening. Therefore, the contention of the petitioner that the citizens are deprived from raising objections regarding the same is not acceptable.

18. Also, the Pune Municipal Corporation published a Draft Development Plan for the original limit of Pune Municipal Corporation under sub-section (1) of section 26 of the said Act on 4<sup>th</sup> March, 2013. After considering the objections and suggestions received on the draft Development Plan, the Planning Committee submitted its report to the Planning Authority on 13<sup>th</sup> February 2015 in accordance with sub-section 2 of section 28 of the MRTP Act. Government in Urban Development Department vide Notification dated 05.01.2017 has accorded sanction to the Development Plan alongwith the Development Control and Promotion Regulations of the Pune Municipal Corporation and the same has come into force with effect from 12.01.2017.

19. I say that the proposal of straightening of alignment of the said nala as shown in sanctioned Development Plan of 2017 is same as that in sanctioned Town Planning Scheme of 1989 and Pune Municipal Corporation is intending to execute the same. In respect of execution of nala straightening proposal on ground, all technical requirements suggested by concerned expert organisation in the said field need to be complied.

20. In view of what is stated above, I say that,

a) The Ambil Odha stream (nala) flowing through a portion of Survey No.135, final plot No.28, is proposed as straight and not curved.

b) There is draftsman's error in the sanctioned Development Plan of 2017 as contended by the Pune Municipal Corporation, in as much as the boundary

between F.P.No. 2B & 28 is concerned, which is rectifiable as per provisions of Note No.1 of the Notification of sanctioned Development Plan of 2017 and the provisions of Regulation No. 6.5.5 of DGFR 2017 are not attracted in such case.

c) As there is no change in the proposal of straightening of alignment of nala, modification to the sanctioned Development Plan of 2017 u/s 37 of the said Act is not required.

d) As the proposal of straitening of nala shown in the sanctioned Town Planning Scheme of 1989 and that shown in the sanctioned Development Plan of 2017 is the same, the question of overriding one over the other does not arise.

e) The position of existing nala in the sanctioned Development Plan of 2017 in the context of the boundary between F.P.No. 2B & 28 is not shown as per the revenue/land records/ sanctioned Town Planning Scheme, which is sought to be corrected under Note No.1 of the Notification of the sanctioned Development Plan of 2017.

3. In view of the categorical statement in paragraph no. 14, above and in particular that in the Development Plans of 2017 the alignment of the Nala is also shown as straight line we are not inclined to continue the status quo order.
4. In view of the above and considering that the project is in public interest, we vacate the ad-interim order of status quo.
5. List the Petition on 23<sup>rd</sup> June, 2022.

**(ABHAY AHUJA, J.)**

**(A. A. SAYED, J.)**

ITEM NO.6

COURT NO.2

SECTION IX

S U P R E M E C O U R T O F I N D I A  
R E C O R D O F P R O C E E D I N G S

Petition(s) for Special Leave to Appeal (C) No(s). 10339/2022

(Arising out of impugned final judgment and order dated 06-05-2022 in WP No. 7354/2021 passed by the High Court Of Judicature At Bombay)

KISHOR MANOHAR KAMBLE &amp; ANR.

Petitioner(s)

VERSUS

PUNE MUNICIPAL CORPORATION &amp; ORS.

Respondent(s)

(FOR ADMISSION and I.R. and IA No.82252/2022-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.82253/2022-EXEMPTION FROM FILING O.T. )

Date : 02-06-2022 This petition was called on for hearing today.

CORAM : HON'BLE MR. JUSTICE AJAY RASTOGI  
HON'BLE MRS. JUSTICE B.V. NAGARATHNA  
(VACATION BENCH)

For Petitioner(s) Mr. George Thomas, Adv.  
Mr. Abhay Anil Anturkar, Adv.  
Mr. Asim Sarode, Adv.  
Dr. R.R. Deshpande, Adv.  
Mr. Dhruv Tank, Adv.  
Ms. Bhavya Pande, Adv.  
Mr. Vaibhav Kulkarni, Adv.  
Mr. Harshvardhan S., Adv.  
M/S. Dr. R.R. Deshpande And Associates, AOR

For Respondent(s)

UPON hearing the counsel the Court made the following  
O R D E R

Signature Not Verified

Digitally signed by  
POOJA SHARMA  
Date: 2022.06.02  
15:00:56 IST  
Reason:

Issue notice returnable on 04.08.2022.

Dasti, in addition, is permitted to be served.

In the meanwhile, status quo which was operating before passing of the order impugned dated 06.05.2022 shall continue and

let the High Court may decide the Writ Petition No. 7354/2021 on its own merits either on the date it is fixed for listing, i.e. 23.06.2022 or any subsequent date expeditiously.

(POOJA SHARMA)  
COURT MASTER (SH)

(BEENA JOLLY)  
COURT MASTER (NSH)

~~XXXXXXXXXXXXXX~~DECISION.

S.No.138C,137,136,135,134,69,413 - O.P.Nos.2B,27,10,711.  
1 + 2 F.P.Nos. 29,28,27+2.

In the Draft Scheme F.P.Nos. 29 + 28 were reserved for Municipal Stables and F.P.Nos. 27 & 2 for Public Stables.

Actually apart from Municipal land included in F.P.No. 29+28, the municipality took on lease for 99 yrs. part of S.No.138-138C admeasuring 4A-35Gs. from the owner and utilised the area for constructing a Colony for low income municipal employees. The Scheme proposals with the change of user as above in respect of F.P.Nos. 29 & 28 is confirmed.

As regards F.P.Nos. 27 & 2 part of S.No.69 has been purchased by a private individual who has constructed residential buildings thereon. Similarly part of S.No.4 has been purchased by a private ~~individual~~ individual long back who has fenced the same. The area of S.No.135,134 + 3 is occupied by unauthorised hutment dwellers. Draft Scheme proposal of straightening of the Nala through S.No.135 is confirmed. The Nala land so rendered not wanted for Nala is converted into a large plot and allotted for low income group housing to the local authority, other areas are left to the original owners by providing an access to S.No.134 and ~~also~~ allotting 2 plot go and purchaser of land out of S.No.4. The previous reconstitution finalized to allot 3 plots to the owners of S.No.134. S.No.3 + S.No.4 providing access by a 30' road parallel ~~to~~ in the 60' road already constructed is cancelled by hutment dwellers.

F.P.No.27, 2, 2A, 2B, 2C. Areas to be as actually available on site. Ownership to be as appearing in the Property Register.

Sd/- V.K.Bakre,  
9/4/75.

Ref : Pri/313/21

Date : 02<sup>nd</sup> July 2021

To,

The Superintending Engineer,  
Drainage Department, (Operation & Maintenance)  
Pune Municipal Corporation,  
Pune

**Subject:** Note On Hydraulic Design For Revised Alignment of Ambil Odha at Pune Peth  
Parvati Sr. No. 133, Final Plot No. 28.

**Reference:** PMC Letter No. 786, Dated 28/06/2021.

Dear Sir,

Please find attached the Feasibility Report for alignment shifting of Ambil Odha at  
Sr. No. 133, Final Plot No. 28, Node No. T45A to Node T37.

This Submission is in reference to your letter no. 786, dated 28/06/2021 in which you have  
asked in to submit Feasibility Report kindly note that this is report covering Hydraulic  
feasibility & design only. Other relevant consideration like structural design, land  
acquisitions etc. are not in the scope of this report.

Thanking You,

  
Ajeet Oak  
Director



**Encl.:-** Feasibility Report & Map.

  
02/06/2021  
प्रत्यनि:सावण विभाग  
पुणे महानगरपालिका

Primove Infrastructure Development Consultants Pvt. Ltd.

C-3, 304 B, Saudamini Complex, Bhusari Colony, Paud Road, Pune 411 038 India.  
Telefax : +91 20 2528 0200 / 01 Email : info@primoveindia.com

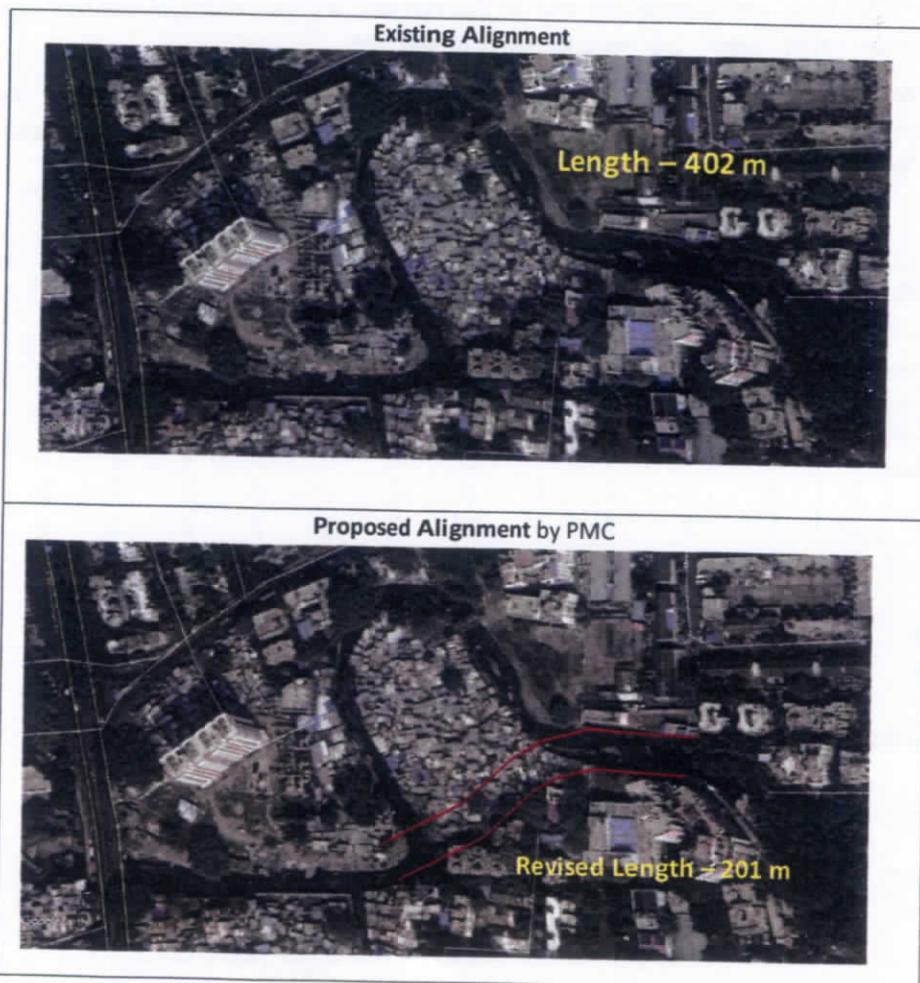
**Note On Hydraulic Design For Revised Alignment Of Ambil Odha At Pune Pedth Parvati  
Survey No. 133, Final Plot No.2B  
(Ref. PMC Letter No. 786 , Dated 28/06/2021)**

Pune Municipal corporation planned to change the alignment planned to part of Ambil Odha at S.No. 133 Final plot number 2 (Node T45A to Node T37) as a part of their development plan. The present nalla has a loop like curve along its alignment about 402 m in length at location shown below.

PMC intends to make this curved stretch into straight alignment. This realignment of nala was planned under TP scheme. Primove has received a letter from SE, Drainage Department (Operation and maintenance) of PMC on dated 28/062021, to submit an opinion about feasibility of changing the existing nala course along proposed alignment.

The length of revised alignment will be reduced from approximately 402 m to approximately 201 m.

**Google Images of Existing Nalla Alignment And Proposed Alignment By PMC**



Hydraulic Design considerations to work out proposed section at this stretch (revised alignment) are described below in details -

**A. Catchment area:**

The catchment area of Ambil Odha is from the PMC area and Out of PMC area as well. Hence topo sheet is considered for calculation of catchment area. Total catchment area of Ambil Odha at this stretch (Node 37) is 3431.56 ha and time of concentration is 55.32 min and for which, estimated intensity of rainfall is 47.81 mm/hr based on IDF curve of 2 years return period. The estimated runoff is 371.61 cum/sec at inlet node no. T45 A.

**B. Rainfall Analysis in Pune City**

The hourly rainfall data of 44 years has been used for analysis. Year 1970 to Year 2011, and year 2013 & Year 2016 collected from IMD, Pune. Hourly rainfall data for year 2012, 2014, 2015 & 2017 and 2018 is missing with IMD.

As per available rainfall data from IMD, average annual rainfall of last 10 years is 887.30 mm. In year 2005 Pune city experienced one of the heaviest annual rainfall of 1227.30 mm and maximum hourly rainfall recorded is 64.50 mm in year 2009.

Rainfall data analysis is carried as per step method as recommended in CPHEEO manual. Intensity –Duration-Frequency (IDF) Curve is generated for 2 year return period and considered for hydraulic designing. Rainfall analysis is given below -

**Duration Vs Intensity of Storms –Step method – 2 years return period**

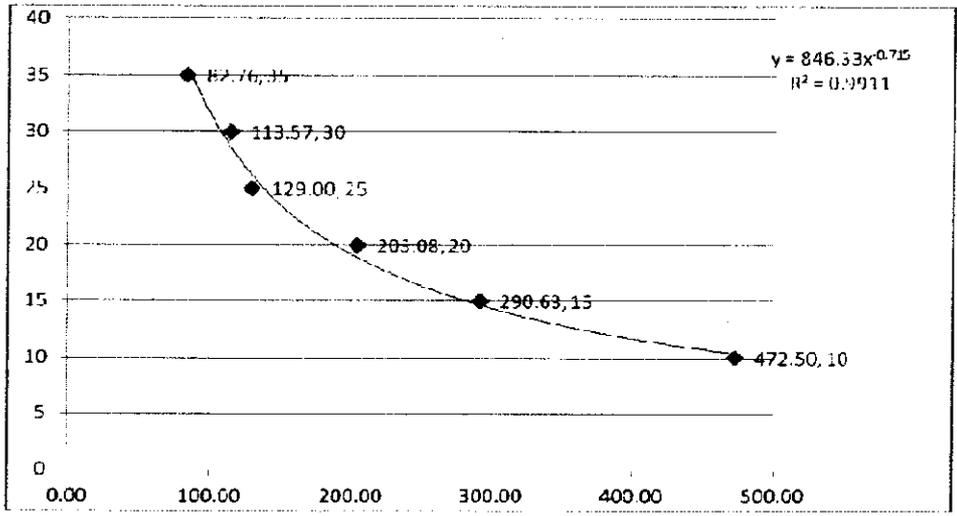
Duration	>=10	>=15	>=20	>=25	>=30	>=35	>=40	>=45	>=50	>=55	>=60	>=70	>=80
1hr	505	274	163	91	47	33	19	10	8	6	6	0	0
2hr	423	142	66	25	19	4	1	1	1	1	1	0	0
3hr	263	69	32	5	3	2	2	1	0	0	0	0	0
4hr	179	49	6	5	3	1	0	0	0	0	0	0	0
5hr	106	17	6	3	0	0	0	0	0	0	0	0	0
6hr	86	8	3	0	0	0	0	0	0	0	0	0	0
7hr	29	3	2	0	0	0	0	0	0	0	0	0	0
8hr	21	3	0	0	0	0	0	0	0	0	0	0	0
9hr	15	3	0	0	0	0	0	0	0	0	0	0	0
10 hr	10	0	0	0	0	0	0	0	0	0	0	0	0
11 hr	2	0	0	0	0	0	0	0	0	0	0	0	0

Time for different Intensities are worked out based on above chart and given below

Intensity in mm/hr	time in min
10	472.50
15	290.63
20	203.08
25	129.00
30	113.57
35	82.76

From above table Intensity-Duration-frequency (IDF) curve is plotted

**IDF Curve for 2 Year Return Period**



The general formula for the intensity-duration relation is used in the analysis is:

$$I = \frac{a}{t^n}$$

where: I = Intensity of storm in mm./hr.

'a' and 'n' are constants

t = Duration in minutes

The values of "a" and "n" are determined by step method analysis. These values are presented below

Return Period	a	n
Two years	846.33	0.715

Thus the empirical relation of Intensity and Duration for 2 year Return Period can be expressed as

$$i = 846.33 / t^{0.715}$$

Based on the evaluation of the power law fit, Rainfall intensity for different time is worked out and presented in following table –

Time in min	Intensity in mm/hr
5	268
10	163
15	122
20	99
30	74
40	61
50	52
60	45
70	41
90	34
100	31
120	28
150	24
180	21
210	18
240	17
300	14

### C. Hydraulic Capacity

The hydraulic capacity of the drains is computed by using Manning's Formula having the following expression:

For open channel section

$$V = (1/n) R^{2/3} S^{1/2}$$

Where

V = Velocity in m/sec.

R = Hydraulic radius in m,

S = Invert slope,

n = Manning's Coefficient of Roughness

The design of nalla has been conducted by applying appropriate, coefficient of roughness for that drain. The classification of drains used in the analysis, and the corresponding values of the coefficient of roughness used for types of drains are given below:

**Roughness coefficients for different drain types**

<b>Drain Type</b>	<b>Description</b>	<b>Manning's 'n'</b>
1	Natural drain, meandering-with vegetation in poor condition	0.035
2	Natural drain, largely straight-without vegetation	0.030
3	Un plastered Stone masonry walls natural bed	0.025
4	Plastered Stone masonry walls natural bed	0.023
5	<b>PCC/Concrete walls with natural bed</b>	<b>0.018</b>
6	PCC/RCC walls, concrete bed	0.015
7	RCC pipe drain	0.011

**D. Velocity:**

Maximum velocity of 6.0 m/s to be permitted in open channel as per IRC:SP:42-2014, 7.2 open channel Design ,Table 7.1

**E. Design Software:**

Bentleys Storm CAD software is used for hydraulic Modelling. 2 years return period is considered for runoff calculation. Excel based design is also completed.

**F. Slope:**

Slope of existing stretch and revised alignment is given below -

<b>Particulars</b>	<b>Existing Stretch</b>	<b>Proposed Stretch</b>
Length of Stretch	<b>402</b>	<b>201</b>
Exist. Invert Level at Inlet (Node T45A)	558.45	558.45
Exist. Invert level at Outlet (Node T37)	555.35	555.35
Elevation Difference	3.10	3.10
Slope	1 in 130	1 in 65

The nalla section for proposed alignment is calculated to carry estimated runoff with existing slope and for maximum velocity around 6.0 m/sec.

**G. Designed Section**

Designed section considered is for both side retaining walls with natural hard rock bed. For this section Manning's Coefficient of Roughness (n) is considered 0.018. Following two options are evaluated -

<b>Sr. No</b>	<b>Particulars</b>	<b>Designed section</b>	<b>Estimated velocity</b>	<b>Slope</b>
1	Design section with actual slope	24 m x 2.50 m	9.04 m/sec	1 in 130

As per above hydraulic design, estimated velocity is higher. In order to restrict velocity for around 6 m/sec, drop arrangement is proposed at 4 places. The recommended design section is given below –

Sr. No	Particulars	Designed section	Estimated velocity	Slope	Remark
1	Design section with drop arrangement to control velocity	24 m x 2.50 (Water Depth) m	6.18 m/sec	1 in 221	4 nos. drops of 0.6m depth @ 50m c/c along the length. Refer drawing

H. Points to be considered during execution:

- Working survey & detailed geotechnical investigation shall be done prior to execution of work.
- As maximum velocity is considered for design is 6m/sec, scouring depth shall be considered while RCC design of retaining walls. In case of absence of hard strata at nalla bottom, provision for avoiding bed scouring shall be made in consultation with RCC designer if required.
- In case of drop structure, the drop should have slope and energy dissipation arrangement at downstream . Refer respective sketch in drawing.
- All retaining walls, bed lining if required & drop arrangement should be designed in RCC following relevant IS standards.
- The depth given in above table is hydraulic water depth. Actual depth of nalla from ground level to given invert level will vary and will have to be decided after detailed survey.

Hydraulic Design For Proposed Nalla Between Node No. T45A to T37\_ With Drop Arrangement For Velocity Control

Start Node	Stop Node	Length (m)	System Drainage Area (ha)	System CA (ha)	System Flow Time (min)	System Intensity (mm/h)	Flow (m <sup>3</sup> /s)	Span (m)	water Depth (m)	Mannin g's n	Capacity (Design) (m <sup>3</sup> /s)	Slope (Calculate d) (m/m (H:V))	Velocity (m/s)	Elevation Ground (Start) (m)	Elevation Ground (Stop) (m)	Invert (Start) (m)	Invert (Stop) (m)	Flow / Capacity (Design) (%)	Notes	
T45 A	T45 B	58.35	3431.56	2779.66	54.90	48.08	371.09	24.00	2.50	0.018	377.60	205.44	6.18	563.090	563.460	557.850	557.566	98	Drop 0.6 m	
T45 B	T45 C	50.94	3431.56	2783.79	55.06	47.96	370.77	24.00	2.50	0.018	391.10	191.51	6.18	563.460	563.000	556.966	556.700	95	Drop 0.6 m	
T45 C	T45 D	45.64	3431.56	2783.79	55.20	47.88	370.13	24.00	2.50	0.018	400.56	182.57	6.17	563.000	562.700	556.200	555.950	92	Drop 0.5 m	
T45 D	T37	45.64	3431.56	2783.79	55.32	47.81	369.56	24.00	2.50	0.018	310.27	304.28	6.16	562.700	558.290	555.500	555.350	119	Drop 0.45 m	
Total		201	M																	



PLAN & SECTION OF  
AMBIL ODHA DIVERSION ALIGNMENT

SCALE: 1:200

**NOTES**

- \* This drawing is a right & property of PRIMOVE is not to be produced copied handed over to third party or used for any other purpose other than for which it is intended and remain our sole property. This drawing together with any copies made by the recipient shall be returned on demand to us.
- \* This drawing should be read in conjunction with relevant detailed architectural drawings & design sheets. All dimensions shall be verified on site prior to start of work.
- \* The drawing only illustrates the size & gradient required for the alignment as per hydraulic requirement.
- \* The drawing should not be used for construction & structural reference.

**LEGEND**

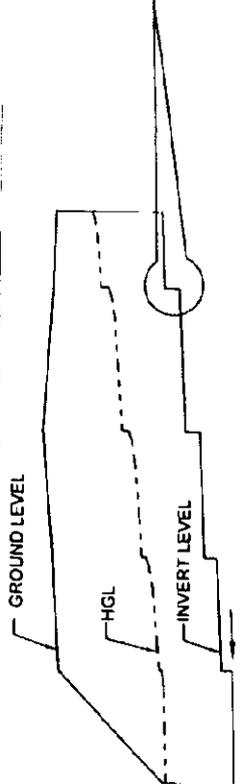
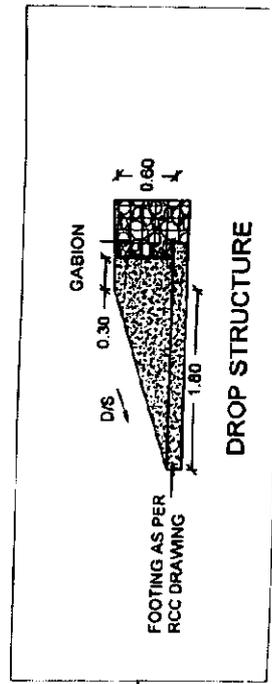
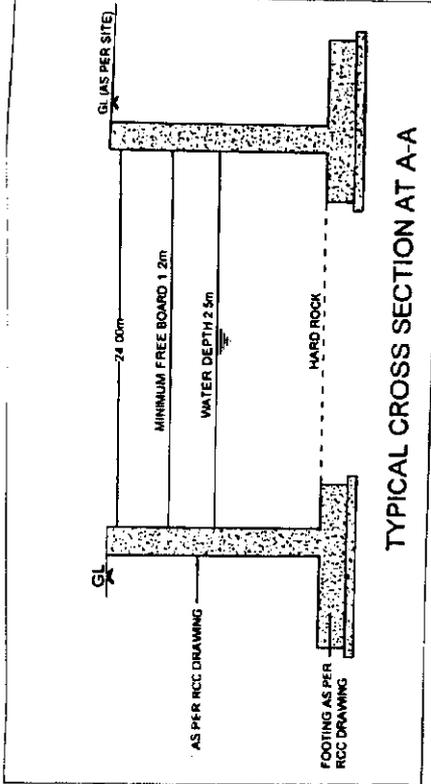
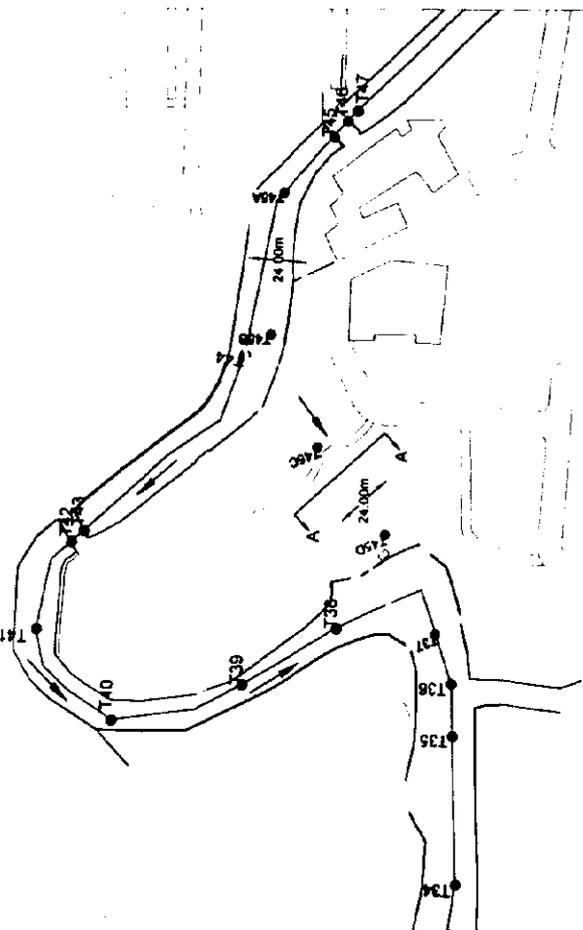
SR NO	DESCRIPTION	CODE
1	ROAD	---
2	WALL	---
3	WALL DIVERSION ALIGNMENT	---
4	STRUCTURE	---
5	PROPOSED ROAD	---

PROJECT CODE	DRAWING NO	DATE
PUNJAB ODHA	PRIMOVE/ODHA/AMBIL	JUNE 2011
DRAWN BY	CHECKED BY	SCALE
PAJ	BNW	1:200
PROJECT		

FLASH FLOOD AFFECTED AREAS AT AMBIL ODHA

CLIENT  
PUNJ MUNICIPAL CORPORATION

**PRIMOVE**  
PRIMOVE INFRASTRUCTURE DEVELOPMENT CONSULTANTS PVT. LTD  
C-2, 304 B, Swasthika Complex, Tel: +91-20-2608200  
Bhubaneswar, Odisha, India. Email: info@primove.co.in  
Manufacture: 11/08/11



Station (m)	Elevation (Ground) (m)	Elevation (Invert) (m)	Label
0+00.0	558.290	555.350	T37
0+45.8	562.700	555.500	T45 D
0+91.3	563.000	556.200	T45 C
1+42.2	563.460	556.966	T45 B
2+00.6	563.090	557.850	T45 A
2+31.6	563.000	558.600	T45

Ref : Pri/707/21

Date : 21<sup>st</sup> December 2021

To,  
The Superintending Engineer,  
Drainage Department, (Operation & Maintenance)  
Pune Municipal Corporation,  
Pune

**Subject:** Report on Hydraulic Design For Revised Alignment of Ambil Odha at Pune Peth Parvati Sr. No. 133, Final Plot No. 28.

**Reference:** 1) PMC Letter No. 786, Dated 28/06/2021.  
2) Our Letter No. Pri/313/21, dated 2<sup>nd</sup> July 2021

Dear Sir,

This is in reference with above; we have submitted our report as per reference 2. We here by submitting the revised report with additional hydraulic calculations for 25 years return period as per revised CPHEEO guidelines.

Please note that this is report covering Hydraulic feasibility & design only. Other relevant consideration like structural design, land acquisitions etc. are not in the scope of this report.

Thanking You,

  
Ajeet Oak  
Director



Encl.: Report

अधिक्षक अभियंता  
मलिनिसारण देवालय व दुकस्ती विभाग  
पुणे नगर पालिका  
आवक क्र. ४४०३  
आवक क्र.  
दिनांक २२/१२/२०२१

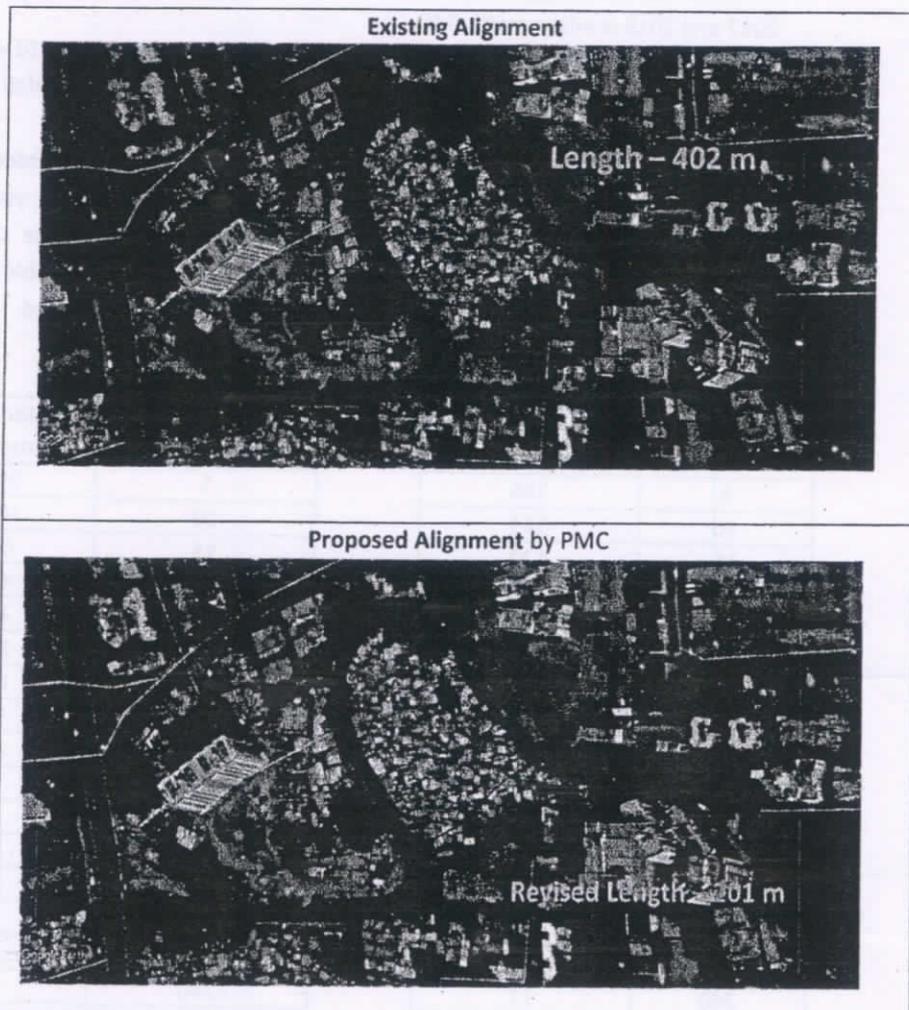
**Note On Hydraulic Design For Revised Alignment Of Ambil Odha At Pune Pedth Parvati  
Survey No. 133, Final Plot No.2B  
(Ref. PMC Letter No. 786 , Dated 28/06/2021)**

Pune Municipal corporation planned to change the alignment planned to part of Ambil Odha at S.No. 133 Final plot number 2 (Node T45A to Node T37) as a part of their development plan. The present nalla has a loop like curve along its alignment about 402 m in length at location shown below.

PMC intends to make this curved stretch into straight alignment. This realignment of nala was planned under TP scheme. Primove has received a letter from SE, Drainage Department (Operation and maintenance) of PMC on dated 28/06/2021, to submit an opinion about feasibility of changing the existing nala course along proposed alignment.

The length of revised alignment will be reduced from approximately 402 m to approximately 201 m.

**Google Images of Existing Nalla Alignment And Proposed Alignment By PMC**



As per old CPHEEO manual 2 YRP was considered for nalla design , but as per new manual 25 YRP is considered for nalla design . Hydraulic Design considerations to work out proposed section at this stretch (revised alignment)by 2 YRP & 25 YRP are described below in details -

**A. Catchment area:**

The catchment area of Ambil Odha is from the PMC area and Out of PMC area as well. Hence topo sheet is considered for calculation of catchment area. Total catchment area of Ambil Odha at this stretch (Node 37) is 3431.56 ha

**A) For 2 Year Return Period** - Time of concentration is 55.32 min and for which, estimated intensity of rainfall is 47.81 mm/hr based on IDF curve of 2 years return period. The estimated runoff is 371.61 cum/sec at inlet node no.T45 A.

**B) For 25 Year Return Period** - Time of concentration is 41.56 min and for which, estimated intensity of rainfall is 159.82 mm/hr based on IDF curve of 25 years return period. The estimated runoff is 1233.59 cum/sec at inlet node no.T45 A.

**B. Rainfall Analysis in Pune City**

The hourly rainfall data of 44 years has been used for analysis. Year 1970 to Year 2011, and year 2013 & Year 2016 collected from IMD, Pune. Hourly rainfall data for year 2012, 2014, 2015 & 2017 and 2018 is missing with IMD.

As per available rainfall data from IMD, average annual rainfall of last 10 years is 887.30 mm. In year 2005 Pune city experienced one of the heaviest annual rainfall of 1227.30 mm and maximum hourly rainfall recorded is 64.50mm in year 2009.

Rainfall data analysis is carried as per step method as recommended in CPHEEO manual. Intensity -Duration-Frequency (IDF) Curve is generated for 2 & 25 year return period and considered for hydraulic designing. Based on the evaluation of the power law fit, Rainfall intensity for different time is worked out and presented in following table -

**2 Year Return Period**

$$a = 846.33$$

$$n = 0.715$$

time	in min	Intensity in mm/hr
5		268
10		163
15		122
20		99
30		74
40		61
50		52
60		45
70		41
90		34
100		31
120		28
150		24
180		21
210		18
240		17
300		14

**25 Year Return Period**

$$a = 20781$$

$$n = 1.307$$

time	in min	Intensity in mm/hr
5		2536
10		1025
15		603
20		414
30		244
40		167
50		125
60		99
70		81
90		58
100		51
120		40
150		30
180		23
210		19
240		16
300		12

The general formula for the intensity-duration relation is used in the analysis is:

$$I = \frac{a}{t^n}$$

where:  $I$  = Intensity of storm in mm./hr.

'a' and 'n' are constants

$t$  = Duration in minutes

The values of "a" and "n" are determined by step method analysis. These values are presented below

Return Period	a	n
2 years	846.33	0.715
25 Years	20781	1.307

### C. Hydraulic Capacity

The hydraulic capacity of the drains is computed by using Manning's Formula having the following expression:

For open channel section

$$V = (1/n) R^{2/3} S^{1/2}$$

Where

$V$  = Velocity in m/sec.

$R$  = Hydraulic radius in m,

$S$  = Invert slope,

$n$  = Manning's Coefficient of Roughness

The design of nalla has been conducted by applying appropriate, coefficient of roughness for that drain. The classification of drains used in the analysis, and the corresponding values of the coefficient of roughness used for types of drains are given below:

Roughness coefficients for different drain types

Drain Type	Description	Manning's 'n'
1	Natural drain, meandering-with vegetation in poor condition	0.035
2	Natural drain, largely straight-without vegetation	0.030
3	Un plastered Stone masonry walls natural bed	0.025
4	Plastered Stone masonry walls natural bed	0.023
5	<b>PCC/Concrete walls with natural bed</b>	<b>0.018</b>
6	PCC/RCC walls, concrete bed	0.015
7	RCC pipe drain	0.011

## D. Velocity:

Maximum velocity of 6.0 m/s to be permitted in open channel as per IRC:SP:42-2014, 7.2 open channel Design, Table 7.1

## E. Design Software:

Bentleys Storm CAD software is used for hydraulic Modelling. 2 & 25 years return period is considered for runoff calculation. Excel based design is also completed.

## F. Slope:

Slope of existing stretch and revised alignment is given below -

Particulars	Existing Stretch	Proposed Stretch
Length of Stretch	402	201
Exist. Invert Level at Inlet (Node T45A)	558.45	558.45
Exist. Invert level at Outlet (Node T37)	555.35	555.35
Elevation Difference	3.10	3.10
Slope	1 in 130	1 in 65

The nalla section for proposed alignment is calculated to carry estimated runoff with existing slope and for maximum velocity around 6.0 m/sec.

## G. Designed Section

Designed section considered is for both side retaining walls with natural hard rock bed. For this section Manning's Coefficient of Roughness (n) is considered 0.018. Following two options are evaluated -

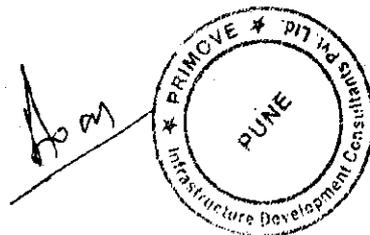
Sr. No	Particulars	Designed section	Estimated velocity	Slope
1	Design section with actual slope(2YRP)	24 m x 2.50 m	9.04 m/sec	1 in 130
2	Design section with actual slope (25 YRP)	30 m x 4.50m	11.15 m/sec	1 in 130

As per above hydraulic design, estimated velocity is higher. In order to restrict velocity for around 6 m/sec, drop arrangement is proposed at 4 places. The recommended design section is given below –

Sr. No	Particulars	Designed section	Estimated velocity	Slope	Remark
1	Design section with drop arrangement to control velocity (2 YRP)	24 m x 2.50 (Water Depth) m	6.18 m/sec	1 in 221	4 nos. drops of 0.6m depth @ 50m c/c along the length. Refer drawing
2	Design section for 25 YRP	30 m x 4.50 (Water Depth) m	8.83 m/sec	1 in 207	With Above drop arrangement velocity is on higher side.

H. Points to be considered during execution:

- Working survey & detailed geotechnical investigation shall be done prior to execution of work.
- As maximum velocity is considered for design is 6m/sec, scouring depth shall be considered while RCC design of retaining walls. In case of absence of hard strata at nalla bottom, provision for avoiding bed scouring shall be made in consultation with RCC designer if required.
- In case of drop structure, the drop should have slope and energy dissipation arrangement at downstream .
- All retaining walls, bed lining if required & drop arrangement should be designed in RCC following relevant IS standards.
- The depth given in above table is hydraulic water depth. Actual depth of nalla from ground level to given invert level will vary and will have to be decided after detailed survey.





Ref: Pri/14/22

To

Superintending Engineer,  
Drainage Operation and Maintenance  
Pune Municipal Corporation  
Pune

**Subject :** Ambil odha at Pune Peth Parvati Sr. No. 133, Final Plot no.28.

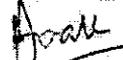
**Reference:** Your letter Ref. Outward No. 2998, dated 5/01/2022.

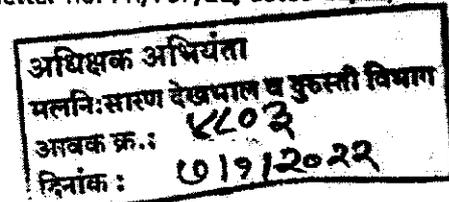
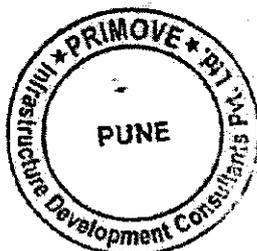
This is in reference with above; situation report for existing and proposed alignment of Ambil Odha at said plot as below -

Existing Alignment	Proposed Alignment by PMC
<ul style="list-style-type: none"> <li>Existing section is from node T44 to T37 of length 402 m having 16.35m average width x 2.81m average height in Ambil Odha (T Dattawadi Basin)</li> <li>Catchment area and flood discharge is 3431.56 ha and 398.21 cum/sec respectively.</li> <li>Out of 402 m length, 295.62 m length is inadequate with flood carrying capacity of 146.09 cum/sec. We have proposed following section for this length in our report submitted on April 2020 Proposed Width – 24.00 m Proposed Depth – 2.25 m</li> <li>The slope of existing length is 1 in 112</li> <li>Providing this section will require widening of existing nalla, which has adjacent slums</li> </ul>	<ul style="list-style-type: none"> <li>In the proposed section, length is to be reduced from 402 m to 201 m at Node T45A to T37</li> <li>This result in increase of slope and therefore increase in velocity</li> <li>Providing similar section as proposed for existing alignment i.e. 24.00 m width and 2.25 m depth, the carrying capacity is 672 Cum/sec which is adequate to carry the discharge. However the velocity is higher than recommended velocity due to increase in slope which can cause bed erosion and scouring</li> <li>It is therefore recommended to provide drop arrangement and fully built up section to control the slope and velocity of flow</li> <li>By adding the drop arrangement, the velocity can be reduced and section required is 24.00 m x 2.50 m</li> <li>In case of revised alignment, proposed section of 24m width x 2.50 m depth with drop arrangement and fully built up section is recommended</li> </ul>
<ul style="list-style-type: none"> <li>Above designed sections are calculated for 2 years return period as per CPHEEO manual, Second Edition, Year 1993</li> </ul>	

Design note of proposed sections is already submitted by letter no. Pri/707/21, dated 21/12/2021.  
We hope that this is as per your requirements.

Thanking You,

  
Ajeet Oak  
Director



Primove Infrastructure Development Consultants Pvt. Ltd.

C-3, 304 B, Saudamini Complex, Bhusari Colony, Pead Road, Pune 411 038 India.  
Telefax : +91 20 2528 0200 / 01 Email : info@primoveindia.com  
www.primoveindia.com

Ref.: Pri/177/22

To,  
The Superintending Engineer,  
Drainage Department  
Pune Municipal Corporation,  
Pune

Sub.: - Note on Hydraulic Design for Revised Alignment of Ambli Odha at Pune Peth Parvati  
Survey No. 133, Final Plot No. 2B.

Ref:

1. PMC Letter No. Pri/786/21, Dated 28/03/2021)
2. Our letter Ref Pri/707/21, dt 21/12/2021
3. Our letter Ref Pri/14/22, dt 07/01/2022
4. Enquiry regarding clarification of velocity in channel in reference to Writ Petition No. 7354 of 2021.

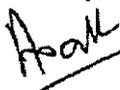
Sir,

I reference to above we have following clarifications

- a. As the Nala length is reduced from 402 m to 201 m, the slope increases, resulting in higher velocity
- b. Open channel flow lined with concrete, a velocity of 6m/s is permitted by Indian Road Congress (IRC) manual IRC SP:42-2014 pg 81. Extract of the code is attached.
- c. It may be noted that increased velocity poses a risk of erosion of bed (and not flooding per se) and therefore we have proposed drop structures and energy dissipation structure.
- d. Additionally, it may be noted that the existing section is not adequate to carry the flood discharge and has slums on the banks, as mentioned in our earlier letter dt. 07<sup>th</sup> Jan. 2022. The letter is also attached for reference.

I hope this clarifies the queries raised.

Thanking you,  
Sincerely,

  
Ajeet Oak  
Director



  
अजेत ओक  
प्रमुख अभियंता

Encl.:- 1. Reference from IRC SP 42-2014  
2. Our letter dt. 07<sup>th</sup> Jan. 2022

## 7.2 Open Channel Design

### 7.2.1 Continuity and manning's equations

For steady uniform flow in open channels, the basic relationships are expressed by use of Continuity and the Manning's equations:

#### Continuity Equation

$$Q = A_1 V_1 = A_2 V_2 \quad \dots \text{Eqn. 1}$$

#### Manning's Equation

$$Q = \frac{1}{n} A R^{2/3} S^{1/2} \quad \dots \text{Eqn. 2}$$

$$V = \frac{1}{n} R^{2/3} S^{1/2} \quad \dots \text{Eqn. 3}$$

#### Channel Conveyance

$$Q = K S^{1/2}$$

where,

Q = discharge in cum/sec.

V = mean velocity of flow in m/sec.

K = Channel conveyance =  $\frac{1}{n} (A R^{2/3})$

n = Manning's roughness coefficient

R = hydraulic radius in m which is area of flow cross section divided by wetted perimeter.

S = energy slope of the channel, which is roughly taken as slope of drain bed.

A = Area of the flow cross-section in m<sup>2</sup>.

Subscripts 1 and 2 refer to successive cross-sections in the uniform flow path

In design of roadside channels, the flow of water is assumed as sub-critical flow. The slope and velocity are kept below the critical level. Critical depth of flow ' $d_c$ ' in open channel is that depth at which specific energy is minimum. On mild slope flow is sub-critical and normal depth of flow ' $d_n$ ' is more than critical depth. For rectangular channel  $d_c = (Q^2/b^2g)^{1/3}$  where 'g' is acceleration due to gravity and b is width of channel. If  $d_n < d_c$ , the slope and channel section should be redesigned so that  $d_n > d_c$ . Stepped Chutes should be provided where ground slope is steep.

Values of "n" for various channel surfaces are given in Table 7.1. The soil classification used in the Table is the Extended Casagrande Classification. Also shown are the maximum permissible velocity values for various types of ditch lining. Velocity values in excess of these will cause erosion in the ditches, which will not only increase the maintenance cost, but also, in the case of side ditches may weaken the road structurally.

Open-channel design can be accomplished by solving the Manning's equation numerically. As this procedure is tedious and time consuming, chart solutions have been developed to solve the problems commonly occurring. Solution can be found very quickly using excel program in computer.

Ref: Pri/14/22

To

Superintending Engineer,  
 Drainage Operation and Maintenance  
 Pune Municipal Corporation  
 Pune

Subject: Ambil odha at Pune Peth Parvati Sr. No. 133, Final Plot no.28.

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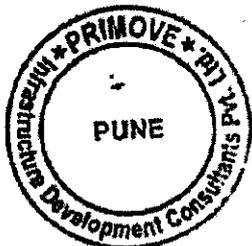
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*Ajeet Oak*  
 Ajeet Oak  
 Director



अधिकारक अभियंता  
 मलनिःसारण देखभाल व कुव्हाती विभाग  
 आवक क्र.: KLO3  
 दिनांक: 01/12/2022

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