

# **SITP PIPE**



|         |                |              |        | Sp              | pecific Inspection | on Testi | ng Plan  |              |             |                 |               |
|---------|----------------|--------------|--------|-----------------|--------------------|----------|----------|--------------|-------------|-----------------|---------------|
| Ref. No | o. ITP/01      | Rev.         | 00     |                 |                    |          |          | Date         |             |                 |               |
| Produc  | t HDPE Gravit  | y Pipes      |        |                 |                    |          |          |              |             |                 |               |
|         |                |              |        | Applicable      |                    |          |          |              |             |                 |               |
| Project | ;              |              |        | Standards       | Consultant         |          |          |              |             |                 |               |
| Client  |                |              |        |                 | Contractor         |          |          |              |             |                 |               |
|         |                |              |        |                 | <u>l</u>           |          |          |              |             |                 |               |
| S.NO.   | Product/       | Factory      |        | Specification/  | Record Form        | at No.   | Hold/wit | ness/ Review | Points      | Accepta         | Frequency     |
|         | Inspection     | Applicable   | е      | International   |                    |          |          |              |             | nce/            |               |
|         | detail         | Procedure    | 5      | Standards       |                    |          |          |              |             | Criteria        |               |
|         | Legend for in  | tervention p | point: | H: Hold point V | W: Random Wi       | tness    | R: Revie | w P: Perfo   | rm          |                 |               |
|         |                |              |        |                 |                    |          | UGPM     | Consultant   | Client/TPI  |                 |               |
| 1       | Raw Material   |              |        |                 |                    |          |          |              |             |                 |               |
| 1.1     | Density        |              |        |                 |                    |          |          |              |             | ≥0.95g/         |               |
|         | (Granule)      | Doc.ref.n    | 10.16  | ISO 1183        | H 9.14             |          | Р        | RW           | R           | cm <sup>3</sup> |               |
|         |                |              |        |                 |                    |          |          |              |             |                 |               |
| 1.2     | Melt flow      |              |        |                 |                    |          |          |              |             |                 | Once for each |
|         | index @ 5Kg    | Doc.ref.n    | no 04  | ISO 1133        | H 9.13             |          | Р        | RW           | R           | ≤0.6            | batch of raw  |
|         | Load           | Bochenin     | 10.01  | 130 1133        | 113.13             |          |          | 100          |             | g/10min         | material from |
|         | (Granule)      |              |        |                 |                    |          |          |              |             |                 | manufacturer  |
| 1.3     | Moisture       | Doc.ref.n    | 10.15  | UGPM Internal   | _                  |          | Р        | RW           | R           | 0.08%           |               |
|         |                |              |        | Standard        |                    |          |          |              |             | M.C             |               |
|         |                |              |        |                 |                    |          |          | _            |             |                 |               |
| Docun   | nent No.ITP/01 |              | UG     | GPM             | Reviewed           | by con   | sultant  | F            | Approved by |                 |               |
|         |                |              |        |                 |                    |          |          |              |             |                 |               |
| R       | Rev.NO.00      |              |        |                 |                    |          |          |              |             |                 |               |
| Date    | e:10.01.2010   |              |        |                 |                    |          |          |              |             |                 |               |
|         |                |              |        |                 |                    |          |          |              |             |                 |               |



|         |                         |               | Specific       | Inspection Tes | ting Pl | an          |                |            |                          |             |
|---------|-------------------------|---------------|----------------|----------------|---------|-------------|----------------|------------|--------------------------|-------------|
| Ref. No | o. ITP/01 Rev.          | 00            |                |                |         |             | Date           | 1          |                          |             |
| Produc  | t HDPE Gravity Pipe     | es            |                |                |         |             |                |            |                          |             |
|         | <u> </u>                |               | _              |                |         |             |                |            |                          |             |
| Project |                         |               | Applicable     | Consultant     |         |             |                |            |                          |             |
|         |                         |               | Standards      | Consumant      |         |             |                |            |                          |             |
| Client  |                         |               |                | Contractor     |         |             |                |            |                          |             |
| Circiic |                         |               |                | Contractor     |         |             |                |            |                          |             |
| S.NO.   | Product/ Inspection     | Factory       | Specification/ | Record Forma   | at      | Hold/witi   | ness/ Review I | Points     | Acceptance/              | Frequency   |
| 5       | detail                  | Applicable    | International  | No.            |         | 11010, 1111 | icos, iterieu  | Oints      | Criteria                 | riequency   |
|         | actan                   | Procedure     | Standards      | 1101           |         |             |                |            | Criteria                 |             |
|         | Legend for interve      |               | · Hold noint W | : Random Witn  | PCC     | R: Revie    | w P: Perfo     | rm         |                          |             |
|         | Legena for interve      | The points in | Thora point 11 |                |         | UGPM        | Consultant     | Client/TPI |                          |             |
| 2       | Duaduat                 |               |                |                |         | 001 141     | Consultant     | Cheffe III |                          |             |
| 2       | Product                 |               |                |                |         |             |                |            |                          | _           |
|         | Dimensional Check       |               |                |                |         |             |                |            |                          |             |
|         | (Diameter, Wall         |               |                |                |         |             |                |            |                          |             |
|         | thickness, Visual       | Doc.ref.no.   | DIN-16961-2,   |                |         |             |                |            | Procedure and            |             |
| 2.1     | check(Appearance)       | 01            | EN-13476-1,3   | H 9.24         |         | Р           | RW             | R          | smooth surface           |             |
|         | Maltiflancia den O. EKa | D             |                |                |         |             |                |            |                          |             |
| 2.2     | Melt flow index @ 5Kg   |               | 100 4422       | 110.42         |         |             | D144           |            |                          |             |
| 2.2     | Load (Moulding)         | 03            | ISO 1133       | H 9.13         |         | Р           | RW             | R          | ≤0.6 g/10min             | 0.55        |
|         |                         | Doc.ref.no.   |                |                |         |             |                |            | As per clients min       | One         |
| 2.3.a   | Ring Stiffness (ISO)    | 02            | ISO 9969       | H 9.6          |         | Р           | RW             | R          | requirement              | Sample per  |
|         | Ring Stiffness          | Doc.ref.no.   |                |                |         |             |                |            | As per clients min       | run (Batch) |
| 2.3.b   | (DIN)                   | 02            | DIN 16961      | H 9.3          |         | Р           | RW             | R          | requirement              |             |
|         |                         | Doc.ref.no.   |                |                |         |             |                |            |                          |             |
| 2.4     | Heat Reversion          | 06            | DIN 8075       | H 9.18         |         | Р           | RW             | R          | 5%                       |             |
|         |                         | Doc.ref.no.   |                |                |         |             |                |            |                          |             |
| 2.5     | Density(Moulding)       | 16            | ISO 1183       | H 9.14         |         | Р           | RW             | R          | ≥0.950 g/cm <sup>3</sup> |             |
|         |                         | Dog rof ro    |                |                |         |             |                |            | As per min               |             |
| 2.6     | Tanada Chara U          | Doc.ref.no.   | 100 527        | 11.0.22        |         |             | DIA/           | <b>D</b>   | requirement of           |             |
| 2.6     | Tensile Strength        | 14            | ISO 527        | H 9.30         |         | Р           | RW             | R          | tender specification     |             |

| Document No.ITP/01 | UGPM | Reviewed by consultant | Approved by |  |
|--------------------|------|------------------------|-------------|--|
| Rev.NO.00          |      |                        |             |  |
| Date:10.01.2010    |      |                        |             |  |

|         |  |                         |                    | `Specific Inspect | ion Testir      | ng Plan |                |            |                          |           |
|---------|--|-------------------------|--------------------|-------------------|-----------------|---------|----------------|------------|--------------------------|-----------|
| Ref. No | . ITP/01                                 | Rev.00                  |                    |                   |                 |         | Da             | ite        |                          |           |
| Product | t HDPE Gravity                           | Pipes                   |                    |                   |                 |         |                |            |                          |           |
|         |  |                         | Applicable         |                   |                 |         |                |            |                          |           |
| Project |  |                         | Standards          | Consultant        | PARSON<br>L.L.C | NS INTE | RNATIONAL &    | COMPANY    |                          |           |
| Client  | OMAN WASTE                               |                         |                    | Contractor        |                 |         |                |            |                          |           |
|         | SERVICE COIVI                            | PANT                    |                    |                   |                 |         |                |            |                          |           |
| S.NO.   | Product/<br>Inspection detai             | Factory Applica Procedu | ble International  | Record Form       | nat No.         | Hold/w  | ritness/ Revie | w Points   | Acceptance<br>/ Criteria | Frequency |
|         | Legend for into                          | ervention po            | int: H: Hold point | W: Random Wi      | itness          | R: Revi | ew P: Perf     | orm        |                          |           |
|         |  |                         |                    |                   |                 | UGPM    | Consultant     | Client/TPI |                          |           |
| 4       | Packing/<br>Inspection detai             | <u>ı</u>                |                    |                   |                 |         |                |            |                          |           |
| 4.1     | Packing Inspecti                         | on                      |                    |                   |                 |         |                |            |                          |           |
| 4.2     | Transportation                           |                         |                    |                   |                 |         |                |            |                          |           |
| 4.3     |  |                         |                    |                   |                 |         |                |            |                          |           |
| 5       | Release note                             |                         |                    |                   |                 |         |                |            |                          |           |
| 6       | Final<br>Manufacturing<br>record book(MR | В)                      |                    |                   |                 |         |                |            |                          |           |
|         |  |                         |                    |                   |                 |         |                |            |                          | _         |
| Docu    | ment No.ITP/01                           | Prepa                   | red by(FPS)v UGPM) | Reviewed          | by consul       | ltant   | Approved b     | y OWSC     |                          |           |
| Da      | Rev.NO.00<br>ite:10.01.2010              |                         |                    |                   |                 |         |                |            |                          |           |



# **SITP MANHOLE**



|                     |   |                              |  | Specific Inspection T | esting Plan |                 |          |  |              |
|---------------------|---|------------------------------|--|-----------------------|-------------|-----------------|----------|--|--------------|
| Ref. No.<br>Product |   | Rev. 00                      |  |                       | J           | Dat             | e        |  |              |
| Project<br>Client   |   |                              | Applicable<br>Standards                | Consultant Contractor |             |                 |          |  |              |
| S.NO.               | Product/<br>Inspection detail   | Factory Applicable Procedure | Specification/ International Standards | Record Format No      | Hold/witi   | ness/ Review Po | oints    | Acceptance/<br>Criteria                    | Frequency    |
|                     | Legend for h  | The vention point            | II. Hold point w.                      | Mandom Withess        | UGPM        | Consultant      | Client/  |  |              |
| 1                   | Product   |                              |  |                       |             |                 |          |  |              |
| 1.1                 | Check dimensions<br>( diameter, height,<br>thickness, profile<br>type) and visual<br>inspection | Doc.ref.no 01                | EN ISO 3126                            | 9.24                  | Р           | RW              | R        | As per client's drawing and smooth surface | Each Manhole |
| 1.2                 | Impact test for welding   | Doc.ref.no 09                |  | 9.24                  | Р           | RW              | R        | No Cracks                                  | Monthly      |
| 1.3                 | Vacuum test for weld integrity  | Doc.ref.no 10                | EN 13598-2                             | 9.24                  | Р           | RW              | R        | No Leakage                                 | Monthly      |
| 1.4                 | Load bearing capacity   | Doc.ref.no 11                | BS7158                                 | 9.24                  | Р           | RW              | R        | No Collapse/<br>No Cracking                | Monthly      |
| 1.5                 | Impact Resistance<br>(Base)   | Doc.ref.no 12                | EN 13598-2 Annex C                     | 9.24                  | Р           | RW              | R        | No Cracks                                  | Quarterly    |
| Docu                | ument No.ITP/02   |                              | UGPM                                   | Reviewed by           | consultant  |                 | Approved | by   |              |
| Da                  | Rev.NO.00<br>ate:10.01.2010   |                              |  |                       |             |                 |          |  |              |



|         |                                   |                 |                                    | Specific                                     | Inspection Tes | ting Pla | n        |                           |                 |                         |           |
|---------|-----------------------------------|-----------------|------------------------------------|--|----------------|----------|----------|---------------------------|-----------------|-------------------------|-----------|
| Ref. No |                                   | Rev.<br>Chambei | 00<br>rs made of                   |  |                | · •      |          | Date                      |                 |                         |           |
| Project |                                   |                 |                                    | Applicable<br>Standards                      | Consultant     |          |          |                           |                 |                         |           |
| Client  |                                   |                 |                                    |  | Contractor     |          |          |                           |                 |                         |           |
| S.NO.   | Product/ Inspe<br>detail          | ction           | Factory<br>Applicable<br>Procedure | Specification/<br>International<br>Standards | Record Form    | at No.   | Hold/w   | itness/ Review            | <i>i</i> Points | Acceptance/<br>Criteria | Frequency |
|         | Legend for in                     | ntervent        | ion point: H:                      | Hold point W                                 | Random Witr    |          | R: Revie | w P: Perfor<br>Consultant | m<br>Client/TPI |                         |           |
| 2       | Riser and ladde                   | <u>er</u>       |                                    |  |                |          |          |                           |                 |                         |           |
| 2.1     | Ring Stiffness of                 | f Riser         | Doc.ref.no 02                      | ISO 9969                                     | 9.6/9.3        |          | Р        | RW                        | R               | ≥2KN/sq.m               | Monthly   |
| 2.2     | Strength of ladde<br>(Vertical)   | er              | Doc.ref.no 13                      | EN 13598-2                                   | 9.24           |          | Р        | RW                        | R               | Deformation ≤<br>10mm   | Monthly   |
| 2.3.    | Pull out Resistan<br>(Horizontal) | ce              | Doc.ref.no 14                      | EN 13598-2                                   | 9.24           |          | Р        | RW                        | R               | No Pull Out             | Monthly   |
| Do      | cument No.ITP/                    | 02              | U                                  | GPM  | Reviewed       | by cons  | ultant   |                           | Approved        | by                      |           |
| ſ       | Rev.NO.00<br>Date:10.01.2010      | l               |                                    |  |                |          |          |                           |                 |                         |           |



|          |  |   | Sp                     | ecific Inspection    | Testing Plan                |                 |                |                         |           |
|----------|--|---|------------------------|----------------------|-----------------------------|-----------------|----------------|-------------------------|-----------|
| Ref. No. |  | ev. 00  |                        |                      |                             | Date            |                | 4                       |           |
| Product  | Manholes & Ch<br>HDPE  | Manholes & Chambers made of HDPE                        |                        |                      |                             |                 |                |                         |           |
| Project  |  |   | Applicable Standards   | Consultant           |                             |                 |                | -                       |           |
| Client   |  |   |                        | Contractor           |                             |                 |                | -                       |           |
| S.NO.    | Product/<br>Inspection detail                                      | Product/ Factory Inspection detail Applicable Procedure |                        | Record<br>Format No. | Hold/witness/               | / Review Points |                | Acceptance/<br>Criteria | Frequency |
|          | Legend for ir  | tervention poi  | nt: H: Hold point W: R | Random Witness       | R: Review                   | P: Perform      |                |                         |           |
|          |  |   |                        |                      | UGPM                        | Consultant      | Client/<br>TPI |                         |           |
| 3        | Fitness for purpose  |   |                        |                      |                             |                 |                |                         |           |
| 3.1      | Tightness of elastomeric seali                                     | ng  | EN 13598-2             |                      | At Site, after installation | RW              | R              | No Leak                 | Random    |
| 3.2      | Water tightness of base-riser connection                           | of  | EN 13598-2             |                      | At Site, after installation | RW              | R              | No Leak                 | Random    |
| 3.3      | Water tightness<br>between elemen<br>and accompanyir<br>components |   | EN 13598-2             |                      | At Site, after installation | RW              | R              | No Leak                 | Random    |
| 3.4      | Water tightness of telescopic part                                 | of  | EN 13598-2             |                      | At Site, after installation | RW              | R              | No Leak                 | Random    |
| 3.5      | Water tightness of Manhole/ HCC                                    | Doc.ref.no  | 15 EN 13598-2          | 9.24                 | At Site, after installation | RW              | R              | No Leak                 | Random    |
| Doc      | ument No.ITP/02  |   | UGPM                   | Reviewed             | by consultant               | 7               | Approved       | by                      |           |
| Da       | Rev.NO.00<br>ate:10.01.2010  |   |                        |                      |                             |                 |                |                         |           |