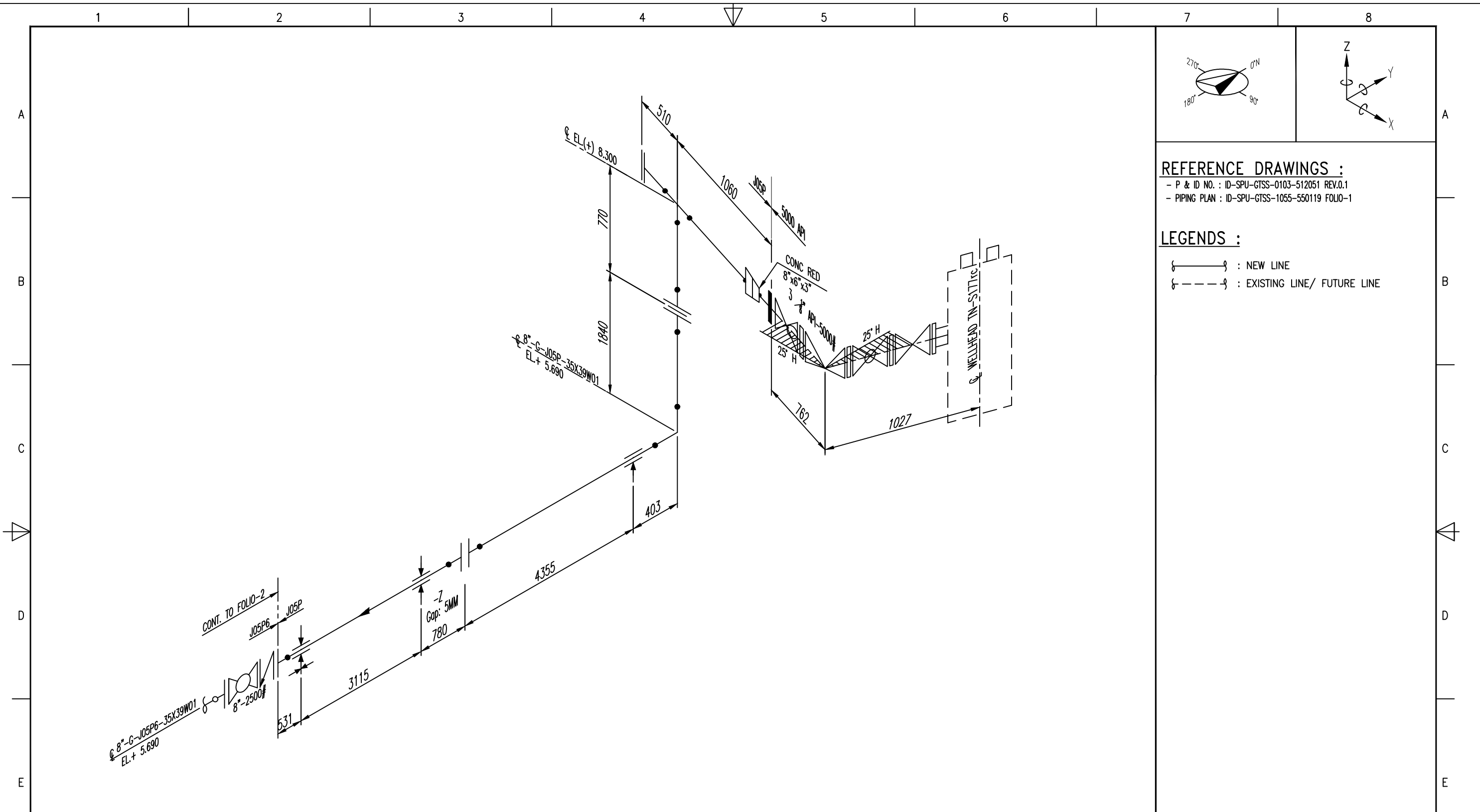


# LAMPIRAN

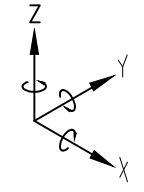
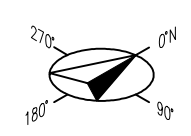


**REFERENCE DRAWINGS :**

- P & ID NO. : ID-SPU-GTSS-0103-512051 REV.0.1
- PIPING PLAN : ID-SPU-GTSS-1055-550119 FOLIO-1

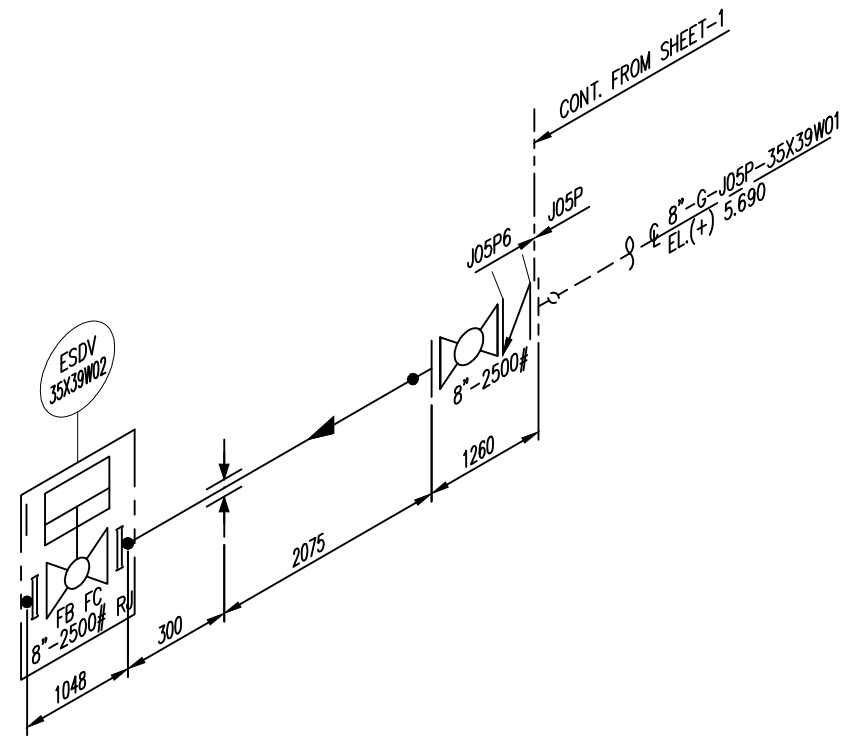
**LEGENDS :**

- : NEW LINE
- - - : EXISTING LINE/ FUTURE LINE



|                          |               |  |  |  |                                       |   |
|--------------------------|---------------|--|--|--|---------------------------------------|---|
| LINE                     | 10 - 200      |  |  | SPRING HANGER/SUPPORT  | PIPE SUPPORT LEGEND                   | CALCULATION NO.<br>ID-SPU-GTSS-1055-550113  |
| MATERIAL OF PIPE         | API 5L X65    |  |  | 1. NODE : SERIES/TYPE :<br>SIZE : SPRING RATE :<br>(N/MM)                                      | PIPE REST SUPPORT                     | STATUS CODE : IFC = Issued For Comments - IFA = Issued For Approval - AFC = Approved For Construction<br>TOTAL OR PARTIAL REPRODUCTION AND/OR UTILIZATION OF THIS DOCUMENT ARE FORBIDDEN WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE OWNER |
| PIPE SIZE & SCH.         | 8" / 25.4MM   |  |  | 2. NODE : SERIES/TYPE :<br>SIZE : SPRING RATE :<br>(N/MM)                                      | U-BOLT (TTB) TOP TO BOT. INSTALLATION |   |
| CORR. ALLOWANCE (mm)     | 5             |  |  | 3. NODE : SERIES/TYPE :<br>SIZE : SPRING RATE :<br>(N/MM)                                      | GUIDE                                 |   |
| AMBIEN TEMP. (°C)        | 21            |  |  | EXPANSION BELLOWS  | ANCHOR                                | PROJECT.<br>TN-S176rc & TN-S177rc<br>STRESS ANALYSIS  |
| INS. THICKNESS (mm)      | -             |  |  | 1. NODE : SERIES/TYPE :<br>SPRING RATE AXIAL LATERAL (N/MM)<br>SPRING RATE ANGULAR (N.MM/DEG.) | STOPPER                               | LINE NO.<br>8"-G-J05P-38X39W01  |
| DESIGN/OPE. PRESS. (kPa) | 25000 / 22000 |  |  | 2. NODE : SERIES/TYPE<br>SPRING RATE AXIAL LATERAL (N/MM)<br>SPRING RATE ANGULAR (N.MM/DEG.)   |                                       | SHEET 1   |
| DESIGN/OPE. TEMP. (°C)   | 115 / 100     |  |  |  |                                       |   |
| FLUID DENSITY (g/cu.cm)  | 0.03          |  |  |  |                                       |   |
| HYDROTEST PRESS. (kPa)   | 46500         |  |  |  |                                       |   |
| DESIGN CODE              | B31.3         |  |  |  |                                       |   |

|      |           |    |                    |                |       |       |               |
|------|-----------|----|--------------------|----------------|-------|-------|---------------|
| REV. | DATE      | BY | DESCRIPTION        | CHECK ENGINEER | APPR. | SPEC. | RESP. PROJECT |
| 0.1  | 15-NOV-17 | IW | ISSUED FOR COMMENT |                |       |       |               |



**REFERENCE DRAWINGS :**  
 - P & ID NO. : ID-SPU-GTSS-0103-512052 REV.0.1  
 - PIPING PLAN : ID-SPU-GTSS-1055-550119 FOLIO-1 & 2

**LEGENDS :**  
 {———} : NEW LINE  
 {----} : EXISTING LINE/ FUTURE LINE

|                          |               |  |  |                       |  |                     |   |   |  |  |  |
|--------------------------|---------------|--|--|-----------------------|--|---------------------|---|---|--|--|--|
| LINE                     | 200 - 255     |  |  | SPRING HANGER/SUPPORT |  | PIPE SUPPORT LEGEND |   | CALCULATION NO.<br>ID-SPU-GTSS-1055-550113  |  |  |  |
| MATERIAL OF PIPE         | API 5L X65    |  |  | 1. NODE :<br>SIZE :   | SERIES/TYPE :<br>SPRING RATE :<br>(N/MM)   |                     | PIPE REST SUPPORT                           | STATUS CODE : IFC = Issued For Comments - IFA = Issued For Approval - AFC = Approved For Construction<br>TOTAL OR PARTIAL REPRODUCTION AND/OR UTILIZATION OF THIS DOCUMENT ARE FORBIDDEN WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE OWNER |  |  |  |
| PIPE SIZE & SCH.         | 8" / SCH.140  |  |  | 2. NODE :<br>SIZE :   | SERIES/TYPE :<br>SPRING RATE :<br>(N/MM)   |                     | U-BOLT (TTB)<br>TOP TO BOT.<br>INSTALLATION |   |  |  |  |
| CORR. ALLOWANCE (mm)     | 5             |  |  | 3. NODE :<br>SIZE :   | SERIES/TYPE :<br>SPRING RATE :<br>(N/MM)   |                     | GUIDE                                       |   |  |  |  |
| AMBIEN TEMP. (°C)        | 21            |  |  | EXPANSION BELLOWS     |  |                     | ANCHOR                                      | PROJECT.<br><b>TN-S176rc &amp; TN-S177rc<br/>         STRESS ANALYSIS</b>   |  |  |  |
| INS. THICKNESS (mm)      | -             |  |  |                       |  |                     | STOPPER                                     |   |  |  |  |
| DESIGN/OPE. PRESS. (kPa) | 25000 / 22000 |  |  | 1. NODE :<br>SIZE :   | SERIES/TYPE :<br>SPRING RATE AXIAL LATERAL (N/MM)<br>SPRING RATE ANGULAR (N.MM/DEG.) |                     |   | LINE NO.<br>8"-G-J05P6-38X39W01   |  |  |  |
| DESIGN/OPE. TEMP. (°C)   | 115 / 100     |  |  | 2. NODE :<br>SIZE :   | SERIES/TYPE :<br>SPRING RATE AXIAL LATERAL (N/MM)<br>SPRING RATE ANGULAR (N.MM/DEG.) |                     |   | SHEET 2   |  |  |  |
| FLUID DENSITY (g/cu.cm)  | 0.03          |  |  |                       |  |                     |   | 0.1 15-NOV-17 IW ISSUED FOR COMMENT<br>REV. DATE BY DESCRIPTION CHECK APPR. SPEC. RESP.<br>ENGINEER PROJECT   |  |  |  |
| HYDROTEST PRESS. (kPa)   | 46500         |  |  |                       |  |                     |   |   |  |  |  |
| DESIGN CODE              | B31.3         |  |  |                       |  |                     |   |   |  |  |  |