

# Stadt Erbach Kläranlage Erbach Sanierung Schaltanlage 1 Betriebsgeb.

Gemeinderatsitzung, Montag, 04.07.2022



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1.

# Bestandssituation Schaltanlage



2.

# Aufnahme der einzelnen Antriebe / Erstellung Antriebs- / Verbraucherliste

| Bauherr: <b>Stadt Erbach</b><br>Projekt: <b>Sanierung NSHV</b><br><br>Projekt-Nr.: <b>3701</b><br>Stand: <b>23.03.2022</b> |             |                                        |              |                | <b>Antriebs- / und Verbraucherliste</b> |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   | <br><b>Conplaning GmbH</b><br>Ulm   Neu-Ulm   Günzburg<br>Ingenieurbüro für<br>Gebäudetechnik<br>Energietechnik<br>Umwelttechnik |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|----------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------|--------------|----------------|-----------------------------------------|--------------|----------|-----------|-----------|---------------------|----------------------|----|-------------|-------------|---------------|-------------------|-----------------------|--------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------|------------------------|-----------------|-----------------|-----------------|-----------------|--------------------|-------------|------------|---------------|---------------|---------------|------------|-----------------------|--------------------|------|----------|------------|--|--|
| Anlagenteil                                                                                                                |             |                                        |              |                | technische Daten                        |              |          |           | Anlaufart |                     |                      |    | allg. Daten |             |               |                   | Bedienen und Anzeigen |              |                   |                                                                                                                                                                                                                     | Ziel                  |                   | Verkabelung            |                 | Bemerkungen     |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
| Lfd.-Nr.                                                                                                                   | Kennzeichen | Geräte - Bezeichnung                   | Bauart       | Gebäude / Raum | Anschlusswert (kW)                      | Spannung (V) | Stom (A) | Schutzart | Direkt    | Motor Stern-Dreieck | Motor polumschaltbar | FU | Motor Wende | Sanftanlauf | Abgang Ventil | Motorschutzhalter | Motorschutzeinzel     | Vorsicherung | FI-Schutzschalter | Not-Aus-Abschaltung                                                                                                                                                                                                 | Betriebsstundenzähler | Stromanzeigegerät | Hand-0-Automatisierung | Bedienen Taster | Meldung Störung | Meldung Betrieb | Meldung vor Ort | Meldung Auto fehlt | Meldung Auf | Meldung Zu | PLS-Bedienung | PLS-Meldungen | Steuerschrank | FU Schrank | vor Ort Steuerschrank | Messtechnikschrank | NSHV | Kabeltyp | Länge in m |  |  |
|                                                                                                                            |             | <b>Feld 1</b>                          |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Rührer 1</b>                        | Motor        | Bio-P Becken   | 2,5                                     | 400          | 6,4      |           | x         |                     |                      |    |             |             |               | x                 |                       | x            |                   | x                                                                                                                                                                                                                   | x                     | x                 | x                      | x               | x               | x               | x               | x                  | x           | x          | x             |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Rührer 2</b>                        | Motor        | Bio-P Becken   | 2,5                                     | 400          | 6,4      |           | x         |                     |                      |    |             |             |               | x                 |                       | x            |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Rührer 3</b>                        | Motor        | DN-Becken      | 2,5                                     | 400          | 6,4      |           | x         |                     |                      |    |             |             |               | x                 |                       | x            |                   | x                                                                                                                                                                                                                   | x                     | x                 | x                      | x               | x               | x               | x               | x                  | x           | x          | x             |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Rührer 4</b>                        | Motor        | DN-Becken      | 2,5                                     | 400          | 6,4      |           | x         |                     |                      |    |             |             |               | x                 |                       | x            |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Kreislaufwasserpumpe</b>            | Motor        | DN Becken      | 7,5                                     | 400          | 16       |           |           |                     |                      | x  |             |             |               | x                 |                       | x            |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Drehzahl ist soll                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Dichtigkeit                            |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Rührer 5</b>                        | Motor        | Eindicker      | 2,5                                     | 400          | 6,4      |           | x         |                     |                      |    |             |             |               | x                 |                       | x            |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Rührer 6</b>                        | Motor        | Eindicker      | 2,5                                     | 400          | 6,4      |           | x         |                     |                      |    |             |             |               | x                 |                       | x            |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Reparaturschalter                      |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Ablaufschieber</b>                  | Auma - Matic | alt DN         | 0,37                                    | 400          | 1,7      |           | x         |                     |                      |    |             |             |               | x                 |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Stellungsgeber                         |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Endlagen                               |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Probenehmer</b>                     |              | Zulauf         |                                         | 230          | 10       |           |           |                     |                      |    |             |             |               |                   |                       | x            |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Probenehmer                            |              | Ablauf         |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             |                                        |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Feld 3 hinten</b>                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Frischwasserpumpe 1</b>             | Motor        |                | 12                                      | 400          | 28,4     |           |           |                     |                      |    | x           |             |               | x                 |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        | x               | x               | x               | x               | x                  | x           | x          | x             |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Druckschalter                          |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Frischwasserpumpe 2</b>             | Motor        |                | 12,5                                    | 400          | 28       |           |           |                     |                      |    | x           |             |               | x                 |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        | x               | x               | x               | x               | x                  | x           | x          | x             |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Druckschalter                          |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | vor-Ort-Steuerstelle                   |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Gebläse Vorklärung</b>              | Motor        |                | 9,2                                     | 400          | 18,5     |           | x         |                     |                      |    |             |             |               | x                 |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        | x               |                 |                 | x               | x                  |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Druckschalter                          |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Schlammpumpe 1 zum Voreindicker</b> | Motor        |                | 5,7                                     | 400          | 9,6      |           | x         |                     |                      |    |             |             |               | x                 |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        | x               | x               | x               | x               | x                  | x           | x          | x             |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | Thermistorschutz                       |              |                |                                         |              |          |           |           |                     |                      |    |             |             |               |                   |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |  |
|                                                                                                                            |             | <b>Schlammpumpe 2 zum Voreindicker</b> | Motor        |                | 5,7                                     | 400          | 9,6      |           | x         |                     |                      |    |             |             |               | x                 |                       |              |                   |                                                                                                                                                                                                                     |                       |                   |                        | x               | x               | x               | x               | x                  | x           | x          | x             |               |               |            |                       |                    |      |          |            |  |  |



## Aufnahme der einzelnen Antriebe / Erstellung Antriebs- / Verbraucherliste

| Bauherr: <b>Stadt Erbach</b><br>Projekt: <b>Sanierung NSHV</b><br>Projekt-Nr.: <b>3701</b><br>Stand: <b>23.03.2022</b> |             |                                                                  |              |                | <b>Antriebs-/ und Verbraucherliste</b> |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |  <b>Conplaning GmbH</b><br>Ulm   Neu-Ulm   Günzburg<br>Ingenieurbüro für<br>Gebäudetechnik<br>Energietechnik<br>Umwelttechnik |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------|--------------|----------------|----------------------------------------|--------------|-----------|-----------|-----------|---------------------|-------------------------|-------------|-------------|---------------|-------------------|-------------------|--------------|-----------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------|-----------------|-----------------|-----------------|-----------------|--------------------|-------------|------------|---------------|---------------|---------------|------------|-----------------------|--------------------|------|----------|------------|--|-----|---------------|
| Anlagenteil                                                                                                            |             |                                                                  |              |                | technische Daten                       |              |           |           | Anlaufart |                     |                         |             |             | allg. Daten   |                   |                   |              | Bedienen und Anzeigen |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 | Ziel            |                    | Verkabelung |            | Bemerkungen   |               |               |            |                       |                    |      |          |            |  |     |               |
| Lfd.-Nr.                                                                                                               | Kennzeichen | Geräte - Bezeichnung                                             | Bauart       | Gebäude / Raum | Anschlusswert (kW)                     | Spannung (V) | Strom (A) | Schutzart | Dirakt    | Motor Stern-Dreieck | Motor polumschaltbar FU | Motor Wende | Sanftanlauf | Abgang Ventil | Motorschutzhalter | Motorschutzrelais | Vorsicherung | FI-Schutzschalter     | Not-Aus-Abschaltung | Betriebsstundenzähler                                                                                                                                                                                            | Stromanzeigegerät | Hand-O-Automatiskschaltung | Bedienen Taster | Meldung Störung | Meldung Betrieb | Meldung vor Ort | Meldung Auto fehlt | Meldung Auf | Meldung Zu | PLS-Bedienung | PLS-Meldungen | Steuerschrank | FU Schrank | vor Ort Steuerschrank | Messtechnikschrank | NSHV | Kabeltyp | Länge in m |  |     |               |
|                                                                                                                        |             | <b>Thermistorschutz</b>                                          |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Räumer Vorklärbecken</b>                                      | Schaltanlage | Vorklärung     | 400                                    | 25           |           |           | x         |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 | x               | x                  |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Räumer Nachklärbecken 1</b>                                   | Schaltanlage | NKB 1          | 400                                    | 25           |           |           | x         |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 | x               | x                  |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Feld 4 hinten</b>                                             |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Belüfter 1</b>                                                | Motor        | DN Becken      | 22                                     | 400          | 44        |           | x         |                     |                         |             |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               | x               | x                  | x           |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Thermistorschutz vor-Ort-Steuerstelle</b>                     |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Belüfter 2</b>                                                | Motor        | DN Becken      | 22                                     | 400          | 44        |           | x         |                     |                         |             |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               | x               | x                  | x           |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Thermistorschutz vor-Ort-Steuerstelle</b>                     |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Belüfter 3</b>                                                | Motor        | DN Becken      | 22                                     | 400          | 44        |           | x         |                     |                         |             |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               | x               | x                  | x           |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Thermistorschutz vor-Ort-Steuerstelle</b>                     |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Belüfter 4</b>                                                | Motor        | DN Becken      | 22                                     | 400          | 44        |           | x         |                     |                         |             |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               | x               | x                  | x           |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Thermistorschutz vor-Ort-Steuerstelle</b>                     |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Feld 5 hinten</b>                                             |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Schieber zum Erlenbach</b>                                    | Motor        |                | 0,75                                   | 400          | 1,95      |           |           |                     |                         | x           |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               |                 |                    | x           | x          | x             | x             | x             |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Thermistorschutz Endlagen Drehmoment vor-Ort-Steuerstelle</b> |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Schieber zum Regenüberlaufbecken</b>                          | Motor        |                | 0,75                                   | 400          | 1,95      |           |           |                     |                         | x           |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               |                 |                    | x           | x          | x             | x             | x             |            |                       |                    |      |          |            |  |     | nur vorhalten |
|                                                                                                                        |             | <b>Thermistorschutz Endlagen Drehmoment vor-Ort-Steuerstelle</b> |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Pumpe Eindicker Kellerentwässerung</b>                        | Abgang       | Eindicker      |                                        | 400          | 16        |           |           |                     |                         |             |             |               |                   |                   |              | x                     |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Neu</b>                                                       |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             | <b>Schwimmschlammpumpe</b>                                       | Motor        | NKB 1          | 1,6                                    | 400          | 4         | ex        | x         |                     |                         |             |             |               |                   | x                 |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 | x               | x               | x               | x                  | x           |            |               |               |               |            |                       |                    |      |          |            |  | 5x4 |               |
|                                                                                                                        |             | <b>Thermistorschutz Leckageüberwachung vor-Ort-Steuerstelle</b>  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     | 7x1,5         |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     | 7x1,5         |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |
|                                                                                                                        |             |                                                                  |              |                |                                        |              |           |           |           |                     |                         |             |             |               |                   |                   |              |                       |                     |                                                                                                                                                                                                                  |                   |                            |                 |                 |                 |                 |                    |             |            |               |               |               |            |                       |                    |      |          |            |  |     |               |

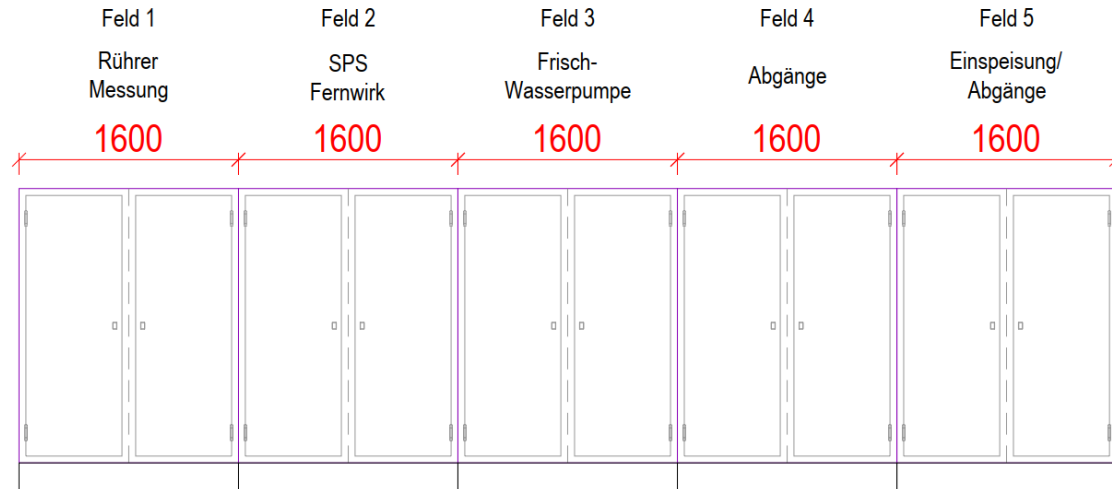
# Aufnahme der einzelnen Messstellen / Erstellung Messstellennliste

[illegible]

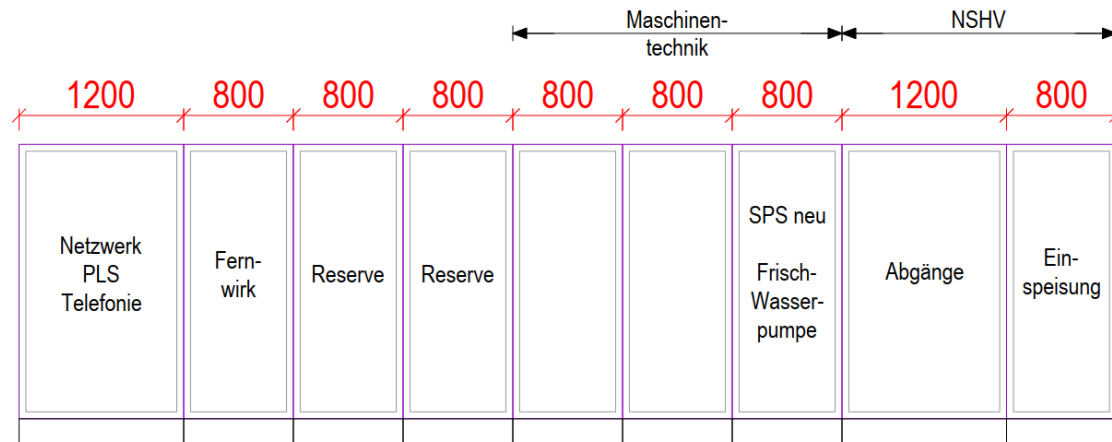


5.

# Entwicklung neue Schaltanlagenfelder



Aufbau  
Schaltanlage  
Bestand



Aufbau  
Schaltanlage  
Neu

Diese CAD-Zeichnung darf ohne unsere Genehmigung weder veröffentlicht, noch dritten Personen oder Konkurrenten zugänglich gemacht werden. Auch bei unverschuldeten Zuwiderhandlungen haftet uns der Empfänger.

Druckdatum: 23.06.2022 - 12:52  
Zeichnungsdatei: 03701-E-UE-0501.dwg  
Prost:

| Idx. | Datum      | gezeichnet | Plan-Phase | Bemerkung   | Format DIN A3   Maßstab: % |
|------|------------|------------|------------|-------------|----------------------------|
| -    | 20.04.2022 | Wahl       | Entwurf    | Erstausgabe |                            |

**Conplaning GmbH**  
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Energietechnik  
Umwelttechnik

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Projekt  
Stadt Erbach  
Kläranlage Erbach  
Sanierung Schaltanlage 1 Betriebsgebäude

Planinhalt  
Aufbau/ Übersicht  
Schaltanlage (alt und neu)

CAD-Nr:  
03701-E-UE-0501

Plan-Nr:  
E-5-01

Projekt-Nr:  
3701



Stadt Erbach  
 Kläranlage  
 Sanierung NSHV

Stand: 29.03.2022

| <b>Kostenschätzung / Kostenberechnung DIN 276</b> |         |       |          |                   |
|---------------------------------------------------|---------|-------|----------|-------------------|
|                                                   | Einheit | Menge |          | GP netto<br>Euro  |
| Zusammenstellung                                  |         |       |          | Gesamt            |
| 220 Öffentliche Erschließung                      |         |       |          | 0,00              |
| 442 Eigenstromversorgungsanlagen                  |         |       |          | 13.545,00         |
| 443 Niederspannungsschaltanlage (NSHV)            |         |       |          | 51.040,00         |
| 443 Niederspannungsschaltanlage Schaltanlage      |         |       |          | 40.460,00         |
| 444 Niederspannungsinstallation                   |         |       |          | 19.040,00         |
| 451 Telekommunikationsanlagen                     |         |       |          | 8.280,00          |
| 480 Gebäudeautomation (SPS)                       |         |       |          | 34.200,00         |
| 483 Automationsmanagement (PLS)                   |         |       |          | 33.900,00         |
| 490 Sonstige Maßnahmen für technische Anlagen     |         |       |          | 18.000,00         |
| <b>Summe KG 400 Technische Anlagen</b>            |         |       |          | <b>218.465,00</b> |
| 19% Mwst                                          |         |       |          | 41.508,35         |
| <b>Summe Technische Ausrüstung</b>                |         |       | (brutto) | <b>259.973,35</b> |

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Bestmöglicher Projekterfolg  
mit allen Planungsbeteiligten  
und einem begeisterten Kunden...

**Vielen Dank für Ihre Aufmerksamkeit!**



**Wir planen. Ihre Zukunft!**

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