



ASET S.p.A.
Azienda Servizi sul Territorio
<Provincia di Pesaro Urbino>

**AMPLIAMENTO E POTENZIAMENTO DELL'IMPIANTO
DI DEPURAZIONE ACQUE REFLUE DI PONTESASSO**

**PROGETTO
DEFINITIVO\ESECUTIVO**



GRUPPO EUROPEO DI ARCHITETTURA, URBANISTICA E INGEGNERIA

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Oggetto

**RELAZIONE CALCOLO STRUTTURALE
DENITRIFICAZIONE-OSSIDAZIONE E LOCALE SOFFIANTI**

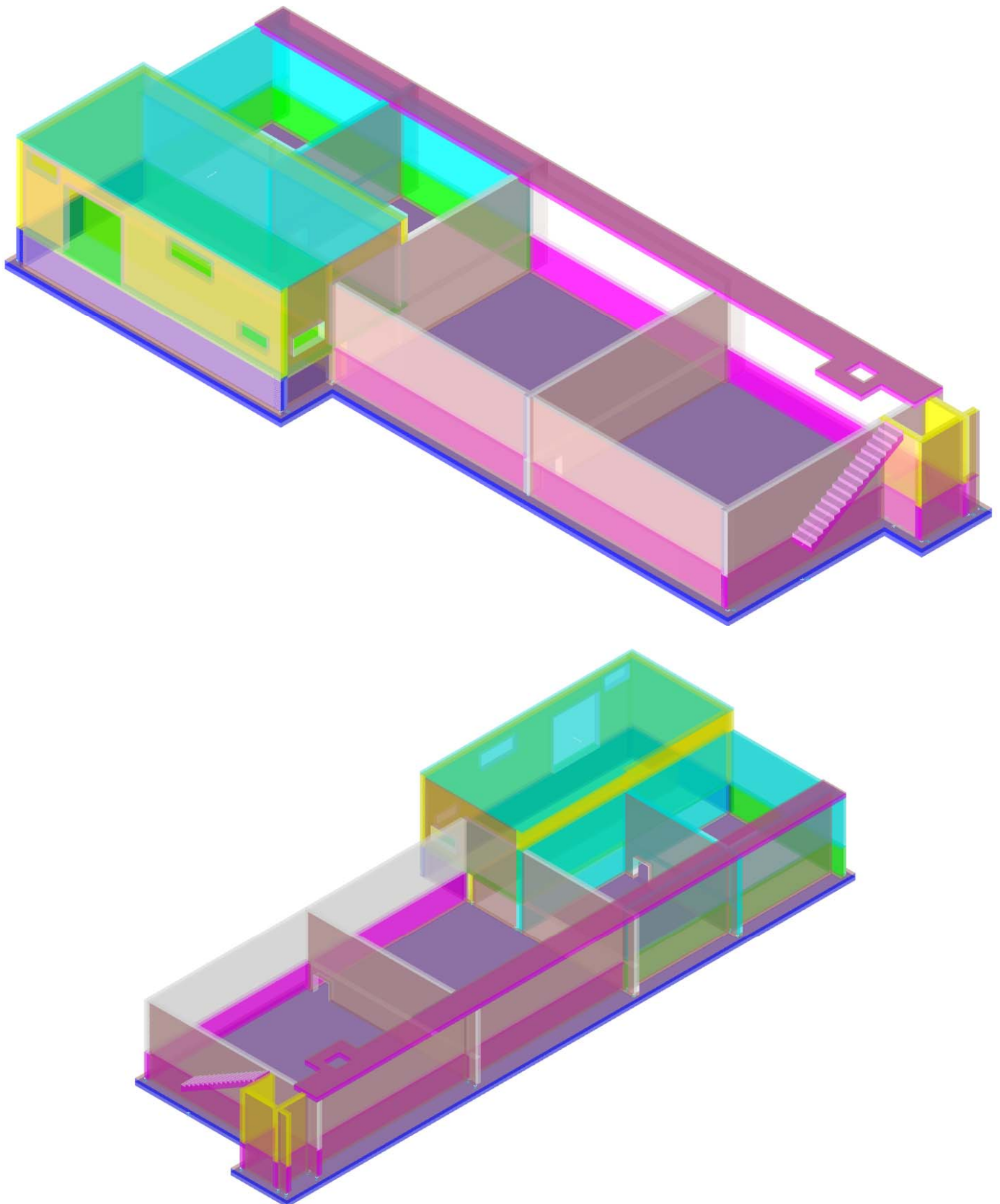
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Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

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1 Rappresentazione generale dell'edificio



Struttura
Vista assometrica dell'edificio nella sua interezza

2 Normative

Norme di riferimento cogenti.

Sono state rispettate, ove occorre, le seguenti disposizioni:

- Legge n. 1086 del 5 Novembre 1971. "Norme per la disciplina delle opere di conglomerato cementizio armato, normale e precompresso, ed a struttura metallica".
- Legge n. 64 del 2 Febbraio 1974. "Provvedimenti per le costruzioni con particolari prescrizioni per le zone sismiche".
- D.M. del 3 Marzo 1975. "Approvazione delle norme tecniche per le costruzioni in zone sismiche".
- D.M. del 3 Marzo 1975. "Disposizioni concernenti l'applicazione delle norme tecniche per le costruzioni in zone sismiche".
- D.M. del 3 Ottobre 1978. "Criteri generali per la verifica della sicurezza delle costruzioni e dei carichi e sovraccarichi".
- D.M. del 14 Febbraio 1992. "Norme Tecniche per l'esecuzione delle opere in C.A. normale e precompresso e per le strutture metalliche".
- Istruzioni per la valutazione delle: Azioni sulle Costruzioni. (C.N.R. 10012/85)
- D.M. del 9 Gennaio 1996. "Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche".
- D.M. del 16 Gennaio 1996. "Norme tecniche relative ai «Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi»".
- D.M. del 16 Gennaio 1996. "Norme tecniche per le costruzioni in zone sismiche"
- Ordinanza n. 3274 del 20 Marzo 2003. "Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica"
- Ordinanza n. 3316. "Modifiche ed integrazioni all'ordinanza del Presidente del Consiglio dei Ministri n. 3274 del 20 Marzo 2003"
- DM 14 gennaio 2008 Norme tecniche per le costruzioni
- Circolare Ministeriale n. 617 del 2 febbraio 2009

Altre norme e documenti tecnici integrativi.

- UNI EN 1991-1-1:2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-1: Azioni in generale - Pesi per unità di volume, pesi propri e sovraccarichi per gli edifici.
- UNI EN 1991-1-3:2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-3: Azioni in generale - Carichi da neve.
- UNI EN 1991-1-4:2005 Eurocodice 1 - Azioni sulle strutture - Parte 1-4: Azioni in generale - Azioni del vento.
- UNI EN 1991-1-5:2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-5: Azioni in generale - Azioni termiche.
- UNI ENV 1991-4:1997 Eurocodice 1 - Basi di calcolo ed azioni sulle strutture. Parte 4: Azioni su silos e serbatoi.
- UNI EN 1992-1-1:2005 Eurocodice 2 - Progettazione delle strutture di calcestruzzo - Parte 1-1: Regole generali e regole per gli edifici.
- UNI ENV 1992-4:2001 Eurocodice 2 - Progettazione delle strutture di calcestruzzo - Parte 4: Strutture di contenimento liquidi.
- UNI EN 1993-1-1:2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-1: Regole generali e regole per gli edifici.
- UNI EN 1993-1-8:2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-8: Progettazione dei collegamenti.
- UNI EN 1998-1:2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 1: Regole generali, azioni sismiche e regole per gli edifici.
- UNI EN 1998-5:2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 5: Fondazioni, strutture di contenimento ed aspetti geotecnici.
- UNI ENV 1998-4:2000 Eurocodice 8 - Indicazioni progettuali per la resistenza sismica delle strutture - Parte 4: Silos, serbatoi e tubazioni.

3 Descrizione del software

DESCRIZIONE DEL PROGRAMMA SISMICAD

Si tratta di un programma di calcolo strutturale che nella versione più estesa è dedicato al progetto e verifica degli elementi in cemento armato, acciaio, muratura e legno di opere civili. Il programma utilizza come analizzatore e solutore del modello strutturale un proprio solutore agli elementi finiti tridimensionale fornito col pacchetto. Il programma è sostanzialmente diviso in tre moduli: un pre processore che consente l'introduzione della geometria e dei carichi e crea il file dati di input al solutore; il solutore agli elementi finiti; un post processore che a soluzione avvenuta elabora i risultati eseguendo il progetto e la verifica delle membrature e producendo i grafici ed i tabulati di output.

SPECIFICHE TECNICHE

Denominazione del software: Sismicad 12
Produttore del software: Concrete
Concrete srl, via della Pieve, 15, 35121 PADOVA - Italy
<http://www.concrete.it>
Rivenditore: CONCRETE SRL - Via della Pieve 19 - 35121 Padova - tel.049-8754720
Versione: 12.0
Identificatore licenza: SW-4156826
Intestatario della licenza: POLANI ING. ANDREA - VIA TRIESTE, 855 - MARINA DI RAVENNA (RA)
Versione regolarmente licenziata

SCHEMATIZZAZIONE STRUTTURALE E CRITERI DI CALCOLO DELLE SOLLECITAZIONI

Il programma schematizza la struttura attraverso l'introduzione nell'ordine di fondazioni, poste anche a quote diverse, platee, platee nervate, plinti e travi di fondazione poggianti tutte su suolo elastico alla Winkler, di elementi verticali, pilastri e pareti in c.a. anche con fori, di orizzontamenti costituiti da solai orizzontali e inclinati (falde), e relative travi di piano e di falda; è ammessa anche l'introduzione di elementi prismatici in c.a. di interpiano con possibilità di collegamento in inclinato a solai posti a quote diverse. I nodi strutturali possono essere connessi solo a travi, pilastri e pareti, simulando così impalcati infinitamente deformabili nel piano, oppure a elementi lastra di spessore dichiarato dall'utente simulando in tal modo impalcati a rigidità finita. I nodi appartenenti agli impalcati orizzontali possono essere connessi rigidamente ad uno o più nodi principali giacenti nel piano dell'impalcato; generalmente un nodo principale coincide con il baricentro delle masse. Tale opzione, oltre a ridurre significativamente i tempi di elaborazione, elimina le approssimazioni numeriche connesse all'utilizzo di elementi lastra quando si richiede l'analisi a impalcati infinitamente rigidi. Per quanto concerne i carichi, in fase di immissione dati, vengono definite, in numero a scelta dell'utente, condizioni di carico elementari le quali, in aggiunta alle azioni sismiche e variazioni termiche, vengono combinate attraverso coefficienti moltiplicativi per fornire le combinazioni richieste per le verifiche successive. L'effetto di disassamento delle forze orizzontali, indotto ad esempio dai torcenti di piano per costruzioni in zona sismica, viene simulato attraverso l'introduzione di eccentricità planari aggiuntive le quali costituiscono ulteriori condizioni elementari di carico da cumulare e combinare secondo i criteri del paragrafo precedente. Tipologicamente sono ammessi sulle travi e sulle pareti carichi uniformemente distribuiti e carichi trapezoidali; lungo le aste e nei nodi di incrocio delle membrature sono anche definibili componenti di forze e coppie concentrate comunque dirette nello spazio. Sono previste distribuzioni di temperatura, di intensità a scelta dell'utente, agenti anche su singole porzioni di struttura. Il calcolo delle sollecitazioni si basa sulle seguenti ipotesi e modalità: - travi e pilastri deformabili a sforzo normale, flessione deviata, taglio deviato e momento torcente. Sono previsti coefficienti riduttivi dei momenti di inerzia a scelta dell'utente per considerare la riduzione della rigidità flessionale e torsionale per effetto della fessurazione del conglomerato cementizio. E' previsto un moltiplicatore della rigidità assiale dei pilastri per considerare, se pure in modo approssimato, l'accorciamento dei pilastri per sforzo normale durante la costruzione. - le travi di fondazione su suolo alla Winkler sono risolte in forma chiusa tramite uno specifico elemento finito; - le pareti in c.a. sono analizzate schematizzandole come elementi lastra-piastra discretizzati con passo massimo assegnato in fase di immissione dati; - le pareti in muratura possono essere schematizzate con elementi lastra-piastra con spessore flessionale ridotto rispetto allo spessore membranale.- I plinti su suolo alla Winkler sono modellati con la introduzione di molle verticali elastoplastiche. La traslazione orizzontale a scelta dell'utente è bloccata o gestita da molle orizzontali di modulo di reazione proporzionale al verticale. - I pali sono modellati suddividendo l'asta in più aste immerse in terreni di stratigrafia definita dall'utente. Nei nodi di divisione tra le aste vengono inserite molle assialsimmetriche elastoplastiche precaricate dalla spinta a riposo che hanno come pressione limite minima la spinta attiva e come pressione limite massima la spinta passiva modificabile attraverso opportuni coefficienti. - i plinti su pali sono modellati attraverso aste di rigidità elevata che collegano un punto della struttura in elevazione con le aste che simulano la presenza dei pali;- le piastre sono discretizzate in un numero finito di elementi lastra-piastra con passo massimo assegnato in fase di immissione dati; nel caso di platee di fondazione i nodi sono collegati al suolo da molle aventi rigidità alla traslazione verticale ed richiesta anche orizzontale.- La deformabilità nel proprio piano di piani dichiarati non infinitamente rigidi e di falde (piani inclinati) può essere controllata attraverso la introduzione di elementi membranali nelle zone di solaio. - I disassamenti tra elementi asta sono gestiti automaticamente dal programma attraverso la introduzione di collegamenti rigidi locali.- Alle estremità di elementi asta è possibile inserire svincolamenti tradizionali così come cerniere parziali (che trasmettono una quota di ciò che trasmetterebbero in condizioni di collegamento rigido) o cerniere plastiche.- Alle estremità di elementi bidimensionali è possibile inserire svincolamenti con cerniere parziali del momento flettente avente come asse il bordo dell'elemento.- Il calcolo degli effetti del sisma è condotto, a scelta dell'utente, con analisi statica lineare, con analisi dinamica modale o con analisi statica non lineare, in accordo alle varie normative adottate. Le masse, nel caso di impalcati dichiarati rigidi sono concentrate nei nodi principali di piano altrimenti vengono considerate diffuse nei nodi giacenti sull'impalcato stesso. Nel caso di analisi sismica vengono anche controllati gli spostamenti di interpiano.

VERIFICHE DELLE MEMBRATURE IN CEMENTO ARMATO

Nel caso più generale le verifiche degli elementi in c.a. possono essere condotte col metodo delle tensioni ammissibili (D.M. 14-1-92) o agli stati limite in accordo al D.M. 09-01-96, al D.M. 14-01-08 o secondo Eurocodice 2. Le travi sono progettate e verificate a flessione retta e taglio; a richiesta è possibile la verifica per le sei componenti della sollecitazione. I pilastri ed i pali sono verificati per le sei componenti della sollecitazione. Per gli elementi bidimensionali giacenti in un medesimo piano è disponibile la modalità di verifica che consente di analizzare lo stato di verifica nei singoli nodi degli elementi. Nelle verifiche (a presso flessione e punzonamento) è ammessa la introduzione dei momenti di calcolo modificati in base alle direttive dell'EC2, Appendice A.2.8. I plinti superficiali sono verificati assumendo lo schema statico di mensole con incastri posti a filo o in asse pilastro. Gli ancoraggi delle armature delle membrature in c.a. sono calcolati sulla base della effettiva tensione normale che ogni barra assume nella sezione di verifica distinguendo le zone di ancoraggio in zone di buona o cattiva aderenza. In particolare il programma valuta la tensione normale che ciascuna barra può assumere in una sezione sviluppando l'aderenza sulla superficie cilindrica posta a sinistra o a destra della sezione considerata; se in una sezione una barra assume per effetto dell'aderenza una tensione normale minore di quella ammissibile, il suo contributo all'area complessiva viene ridotto dal programma nel rapporto tra la tensione normale che la barra può assumere per effetto dell'aderenza e quella ammissibile. Le verifiche sono effettuate a partire dalle aree di acciaio equivalenti così calcolate che vengono evidenziate in relazione. A seguito di analisi inelastiche eseguite in accordo a OPCM 3431 o D.M. 14-01-08 vengono condotte verifiche di resistenza per i meccanismi fragili (nodi e taglio) e verifiche di deformabilità per i meccanismi duttili.

4 Dati generali

4.1 Materiali

4.1.1 Materiali c.a.

Descrizione: Descrizione o nome assegnato all'elemento.

Rck: Resistenza caratteristica cubica; valore medio nel caso di edificio esistente. [daN/cm²]

E: Modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [daN/cm²]

Gamma: Peso specifico del materiale. [daN/cm³]

Poisson: Coefficiente di Poisson. Il valore è adimensionale.

G: Modulo di elasticità tangenziale del materiale, viene impiegato nella modellazione di aste. [daN/cm²]

Alfa: Coefficiente longitudinale di dilatazione termica. [°C⁻¹]

| Descrizione | Rck | E | Gamma | Poisson | G | Alfa |
|-------------|-----|--------|--------|---------|-----------|---------|
| c32/40 | 400 | 336428 | 0.0025 | 0.1 | 152921.72 | 0.00001 |

4.1.2 Curve di materiali c.a.

Rck: Resistenza caratteristica cubica; valore medio nel caso di edificio esistente. [daN/cm²]

E: Modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [daN/cm²]

Gamma: Peso specifico del materiale. [daN/cm³]

Poisson: Coefficiente di Poisson. Il valore è adimensionale.

G: Modulo di elasticità tangenziale del materiale, viene impiegato nella modellazione di aste. [daN/cm²]

Alfa: Coefficiente longitudinale di dilatazione termica. [°C⁻¹]

Curva: Curva caratteristica.

Reaz.traz.: Reagisce a trazione.

Comp.frag.: Ha comportamento fragile.

E.compr.: Modulo di elasticità a compressione. [daN/cm²]

Incr.compr.: Incrudimento di compressione. Il valore è adimensionale.

EpsEc: Epsilon elastico a compressione. Il valore è adimensionale.

EpsUc: Epsilon ultimo a compressione. Il valore è adimensionale.

E.traz.: Modulo di elasticità a trazione. [daN/cm²]

Incr.traz.: Incrudimento di trazione. Il valore è adimensionale.

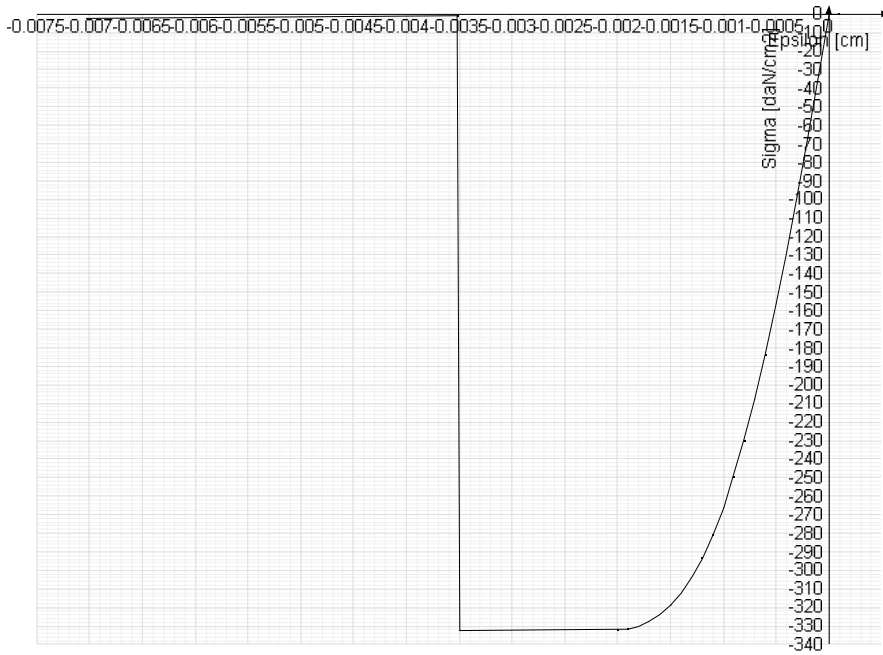
EpsEt: Epsilon elastico a trazione. Il valore è adimensionale.

EpsUt: Epsilon ultimo a trazione. Il valore è adimensionale.

Materiale: C32/40

| Rck | E | Gamma | Poisson | G | Alfa |
|-----|-----------|--------|---------|-----------|---------|
| 400 | 336427.78 | 0.0025 | 0.1 | 152921.72 | 0.00001 |

| Curva | | | | | | | | | |
|------------|------------|-----------|-------------|--------|---------|-----------|------------|-----------|-----------|
| Reaz.traz. | Comp.frag. | E.compr. | Incr.compr. | Eps Ec | Eps Uc | E.traz. | Incr.traz. | Eps Et | Eps Ut |
| No | Si | 336427.78 | 0.001 | -0.002 | -0.0035 | 336427.78 | 0.001 | 0.0000645 | 0.0000709 |



4.1.3 Armature

Descrizione: Descrizione o nome assegnato all'elemento.

fyk: Resistenza caratteristica. [daN/cm²]

Sigma amm.: Tensione ammissibile. [daN/cm²]

Tipo: Tipo di barra.

E: Modulo di elasticità longitudinale del materiale per edifici o materiali nuovi. [daN/cm²]

Gamma: Peso specifico del materiale. [daN/cm³]

Poisson: Coefficiente di Poisson. Il valore è adimensionale.

G: Modulo di elasticità tangenziale del materiale, viene impiegato nella modellazione di aste. [daN/cm²]

Alfa: Coefficiente longitudinale di dilatazione termica. [°C⁻¹]

Livello di conoscenza: Indica se il materiale è nuovo o esistente, e in tal caso il livello di conoscenza secondo Circ. 02/02/09 n. 617 §C8A.

Informazione impiegata solo in analisi D.M. 14-01-08 (N.T.C.).

| Descrizione | fyk | Sigma amm. | Tipo | E | Gamma | Poisson | G | Alfa | Livello di conoscenza |
|-------------|------|------------|---------------------|---------|---------|---------|-----------|----------|-----------------------|
| B450C | 4500 | 2550 | Aderenza migliorata | 2060000 | 0.00785 | 0.3 | 792307.69 | 0.000012 | Nuovo |

4.2 Solai

4.2.1 Solai predalle

Descrizione: Descrizione o nome assegnato all'elemento.

Peso proprio: Peso proprio per unità di superficie. [daN/cm²]

Int.: Interasse tra le nervature. [cm]

B anima: Larghezza anima. [cm]

H: Altezza totale. [cm]

H cappa: Altezza cappa. [cm]

H lastra: Altezza lastra. [cm]

c.s.: Copriferro superiore. [cm]

c.i.: Copriferro inferiore. [cm]

n° tondi: Numero tondi di confezionamento.

Diam. tondi: Diametro tondi di confezionamento. [mm]

Passo rete: Passo rete cappa. [cm]

Diam. rete: Diametro rete cappa. [mm]

Passo r.l.: Passo rete lastra. [cm]

Diam. r.l.: Diametro rete lastra. [mm]

| Descrizione | Peso proprio | Int. | B anima | H | H cappa | H lastra | c.s. | c.i. | n° tondi | Diam. tondi | Passo rete | Diam. rete | Passo r.l. | Diam. r.l. |
|-----------------------|--------------|------|---------|----|---------|----------|------|------|----------|-------------|------------|------------|------------|------------|
| Pre 30x (5+20+5) /120 | 0.0375 | 120 | 30 | 30 | 5 | 5 | 2 | 1 | 6 | 6 | 20 | 6 | 20 | 6 |

5 Dati di definizione

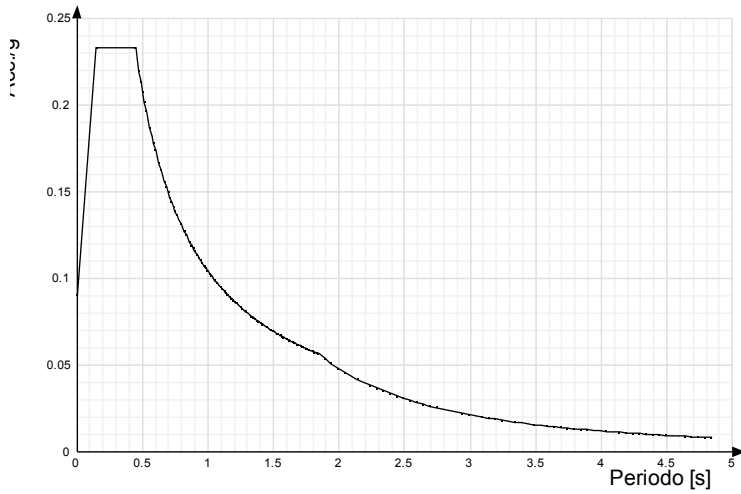
5.1 Preferenze commessa

5.1.1 Preferenze di analisi

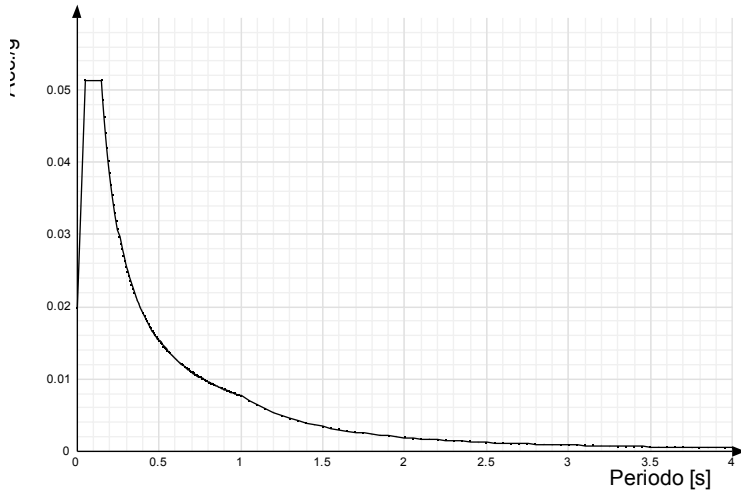
| | | |
|---|---|-------|
| Metodo di analisi | D.M. 14-01-08 (N.T.C.) | |
| Tipo di costruzione | 2 | |
| Vn | 50 | |
| Classe d'uso | II | |
| Vr | 50 | |
| Tipo di analisi | Lineare dinamica | |
| Località | Pesaro E Urbino, San Costanzo - Latitudine (deg) 43,7847°; Longitudine (deg) 13,1012° (N 43° 47' 5"; E 13° 6' 4") ED50 | |
| Zona sismica | Zona 2 | |
| Categoria del suolo | C - sabbie ed argille medie | |
| Categoria topografica | T1 | |
| Ss orizzontale SLD | 1.5 | |
| Tb orizzontale SLD | 0.149 | [s] |
| Tc orizzontale SLD | 0.447 | [s] |
| Td orizzontale SLD | 1.84 | [s] |
| Ss orizzontale SLV | 1.43 | |
| Tb orizzontale SLV | 0.156 | [s] |
| Tc orizzontale SLV | 0.467 | [s] |
| Td orizzontale SLV | 2.323 | [s] |
| Ss verticale | 1 | |
| Tb verticale | 0.05 | [s] |
| Tc verticale | 0.15 | [s] |
| Td verticale | 1 | [s] |
| St | 1 | |
| PVr SLD (%) | 63 | |
| Tr SLD | 50 | |
| Ag/g SLD | 0.0601 | |
| Fo SLD | 2.583 | |
| Tc* SLD | 0.28 | |
| PVr SLV (%) | 10 | |
| Tr SLV | 475 | |
| Ag/g SLV | 0.1808 | |
| Fo SLV | 2.468 | |
| Tc* SLV | 0.298 | |
| Smorzamento viscoso (%) | 5 | |
| Classe di duttilità | CD"B" | |
| Rotazione del sisma | 0 | [deg] |
| Quota dello '0' sismico | 0 | [cm] |
| Regolarità in pianta | Si | |
| Regolarità in elevazione | Si | |
| Edificio C.A. | Si | |
| Tipologia C.A. | Strutture pareti accoppiate $q_0=3.0 \cdot \alpha_U / \alpha_{fa1}$ | |
| alfaU/alfa1 C.A. | Strutture a pareti accoppiate o miste equivalenti a pareti $\alpha_U / \alpha_{fa1}=1.2$ | |
| Kw | 0.5 | |
| Edificio esistente | No | |
| Altezza costruzione | 554 | [cm] |
| C1 | 0.05 | |
| T1 | 0.181 | [s] |
| Lambda SLD | 0.85 | |
| Lambda SLV | 0.85 | |
| Lambda verticale | 0.85 | |
| Numero modi | 15 | |
| Metodo di Ritz | applicato | |
| Torsione accidentale semplificata | No | |
| Torsione accidentale per piani (livelli e falde) flessibili | No | |
| Eccentricità X (per sisma Y) livello "Fondazione" | 0 | [cm] |
| Eccentricità Y (per sisma X) livello "Fondazione" | 0 | [cm] |
| Eccentricità X (per sisma Y) livello "Piano 1" | 69.3 | [cm] |
| Eccentricità Y (per sisma X) livello "Piano 1" | 33.3 | [cm] |
| Eccentricità X (per sisma Y) livello "Piano 2" | 0 | [cm] |
| Eccentricità Y (per sisma X) livello "Piano 2" | 0 | [cm] |
| Eccentricità X (per sisma Y) livello "Piano 3" | 69.3 | [cm] |
| Eccentricità Y (per sisma X) livello "Piano 3" | 33.3 | [cm] |
| Limite spostamenti interpiano | 0.005 | |
| Moltiplicatore sisma X per combinazioni di default | 1 | |
| Moltiplicatore sisma Y per combinazioni di default | 1 | |
| Fattore di struttura per sisma X | 1.8 | |
| Fattore di struttura per sisma Y | 1.8 | |
| Fattore di struttura per sisma Z | 1.5 | |
| Applica 1% (§ 3.1.1) | No | |
| Coefficiente di sicurezza portanza fondazioni superficiali | 2.3 | |
| Coefficiente di sicurezza scorrimento fondazioni superficiali | 1.1 | |

5.1.2 Spettri NTC 08

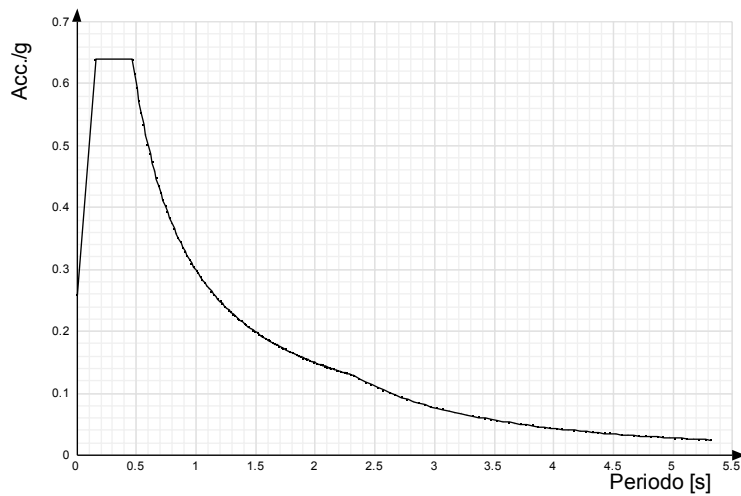
Spettro di risposta elastico in accelerazione delle componenti orizzontali SLD § 3.2.3.2.1 (3.2.4)



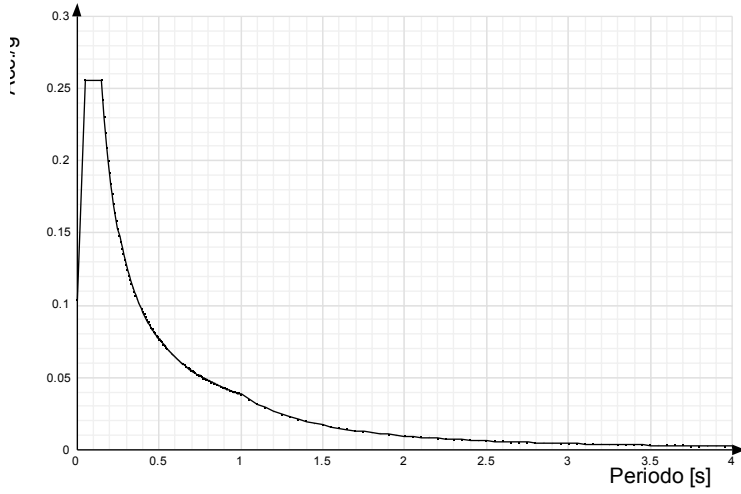
Spettro di risposta elastico in accelerazione della componente verticale SLD § 3.2.3.2.2 (3.2.10)



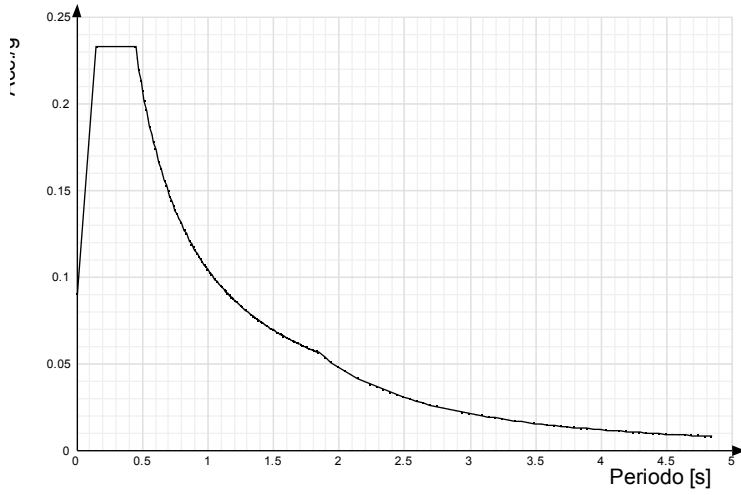
Spettro di risposta elastico in accelerazione delle componenti orizzontali SLV § 3.2.3.2.1 (3.2.4)



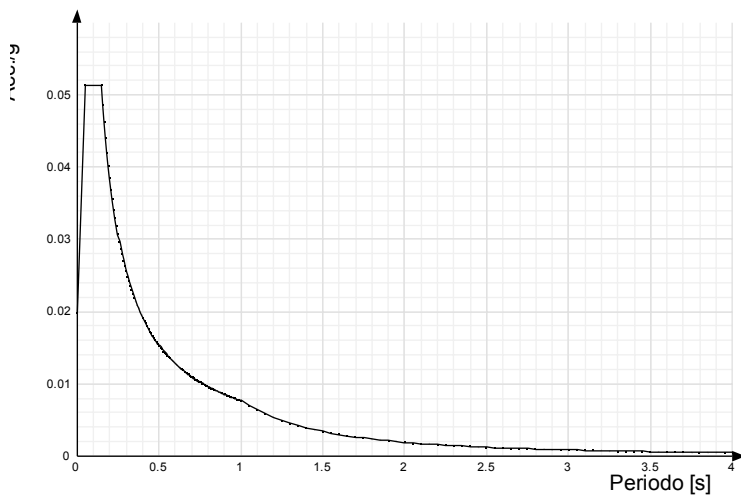
Spettro di risposta elastico in accelerazione della componente verticale SLV § 3.2.3.2.2 (3.2.10)



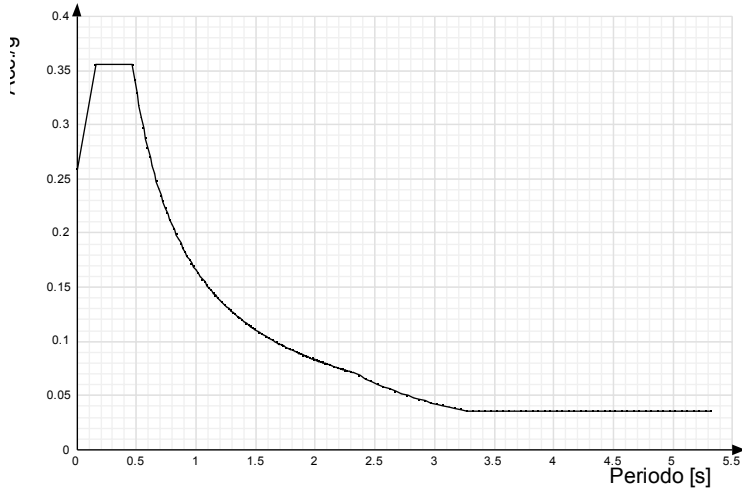
Spettro di risposta di progetto in accelerazione delle componenti orizzontali SLD § 3.2.3.4



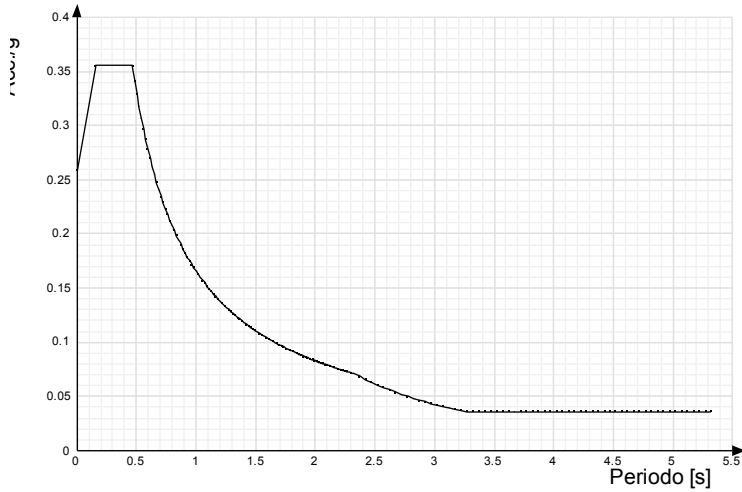
Spettro di risposta di progetto in accelerazione della componente verticale SLD § 3.2.3.4



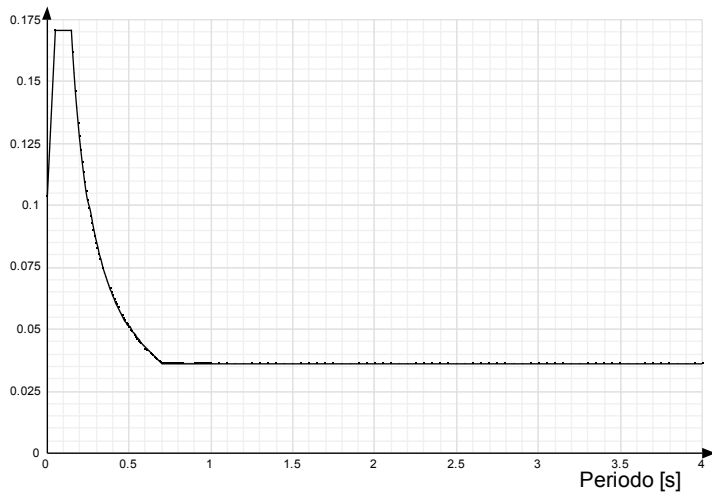
Spettro di risposta di progetto in accelerazione della componente X SLV § 3.2.3.5



Spettro di risposta di progetto in accelerazione della componente Y SLV § 3.2.3.5



Spettro di risposta di progetto in accelerazione della componente verticale SLV § 3.2.3.5



5.1.3 Preferenze di verifica

5.1.3.1 Normativa di verifica in uso

Norma di verifica
Cemento armato

D.M. 14-01-08 (N.T.C.)
Preferenze analisi di verifica in stato
limite

5.1.3.2 Normativa di verifica C.A.

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| | | |
|---|------|------|
| Coefficiente di omogeneizzazione | 15 | |
| Beta EC2 7.4.3 (7.19) | 1 | |
| Gamma s (fattore di sicurezza parziale per l'acciaio) | 1.15 | |
| Gamma c (fattore di sicurezza parziale per il calcestruzzo) | 1.5 | |
| Limite σ_{mac}/f_{ck} in combinazione rara | 0.6 | |
| Limite σ_{mac}/f_{ck} in combinazione quasi permanente | 0.45 | |
| Limite σ_{maf}/f_{yk} in combinazione rara | 0.8 | |
| Coefficiente di riduzione della tau per cattiva aderenza | 0.7 | |
| Dimensione limite fessure w1 §4.1.2.2.4.1 | 0.02 | [cm] |
| Dimensione limite fessure w2 §4.1.2.2.4.1 | 0.03 | [cm] |
| Dimensione limite fessure w3 §4.1.2.2.4.1 | 0.04 | [cm] |
| Fattori parziali di sicurezza unitari per meccanismi duttili di strutture esistenti con fattore q | No | |
| Copriferro secondo EC2 | Si | |

5.1.4 Preferenze FEM

| | | |
|--|--------------------------|-------|
| Dimensione massima ottimale mesh pareti (default) | 50 | [cm] |
| Dimensione massima ottimale mesh piastre (default) | 50 | [cm] |
| Tipo di mesh dei gusci (default) | Quadrilateri o triangoli | |
| Tipo di mesh imposta ai gusci | Specifico dell'elemento | |
| Metodo P-Delta | non utilizzato | |
| Analisi buckling | non utilizzata | |
| Rapporto spessore flessionale/membranale gusci muratura verticali | 0.2 | |
| Rapporto spessore flessionale/membranale gusci di pareti in legno | 1 | |
| Tolleranza di parallelismo | 4.99 | [deg] |
| Tolleranza di unicità punti | 10 | [cm] |
| Tolleranza generazione nodi di aste | 1 | [cm] |
| Tolleranza di parallelismo in suddivisione aste | 4.99 | [deg] |
| Tolleranza generazione nodi di gusci | 4 | [cm] |
| Tolleranza eccentricità carichi concentrati | 100 | [cm] |
| Considera deformazione a taglio delle piastre | No | |
| Modello elastico pareti in muratura | Gusci | |
| Concentra masse pareti nei vertici | No | |
| Segno risultati analisi spettrale | Analisi statica | |
| Memoria utilizzabile dal solutore | 8000000 | |
| Metodo di risoluzione della matrice | Matrici sparse | |
| Scrivi commenti nel file di input | No | |
| Scrivi file di output in formato testo | No | |
| Solidi colle e corpi ruvidi (default) | Solidi reali | |
| Moltiplicatore rigidità molla torsionale applicata ad aste di fondazione | 1 | |
| Modello trave su suolo alla Winkler nel caso di modellazione lineare | Equilibrio elastico | |

5.1.5 Moltiplicatori inerziali

Tipologia: Tipo di entità a cui si riferiscono i moltiplicatori inerziali.

J2: Moltiplicatore inerziale di J2. Il valore è adimensionale.

J3: Moltiplicatore inerziale di J3. Il valore è adimensionale.

Jt: Moltiplicatore inerziale di Jt. Il valore è adimensionale.

A: Moltiplicatore dell'area della sezione. Il valore è adimensionale.

A2: Moltiplicatore dell'area a taglio in direzione 2. Il valore è adimensionale.

A3: Moltiplicatore dell'area a taglio in direzione 3. Il valore è adimensionale.

Conci rigidi: Fattore di riduzione dei tronchi rigidi. Il valore è adimensionale.

| Tipologia | J2 | J3 | Jt | A | A2 | A3 | Conci rigidi |
|------------------------------------|----|----|------|---|----|----|--------------|
| Trave C.A. | 1 | 1 | 0.01 | 1 | 1 | 1 | 0.5 |
| Pilastro C.A. | 1 | 1 | 0.01 | 1 | 1 | 1 | 0.5 |
| Trave di fondazione | 1 | 1 | 0.01 | 1 | 1 | 1 | 0.5 |
| Palo | 1 | 1 | 0.01 | 1 | 1 | 1 | 0 |
| Trave in legno | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Colonna in legno | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Trave in acciaio | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Colonna in acciaio | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Trave di reticolare in acciaio | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Maschio in muratura | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| Trave di accoppiamento in muratura | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| Trave di scala C.A. nervata | 1 | 1 | 1 | 1 | 1 | 1 | 0.5 |
| Trave tralicciata | 1 | 1 | 0.01 | 1 | 1 | 1 | 0.5 |

5.1.6 Preferenze di analisi non lineare FEM

| | |
|---------------------------|---------|
| Metodo iterativo | Secante |
| Tolleranza iterazione | 0.0001 |
| Numero massimo iterazioni | 50 |

5.1.7 Preferenze di analisi carichi superficiali

| | | |
|---|--------------------|----------|
| Detrazione peso proprio solai nelle zone di sovrapposizione | non applicata | |
| Metodo di ripartizione | a zone d'influenza | |
| Percentuale carico calcolato a trave continua | 0 | |
| Esegui smoothing diagrammi di carico | applicata | |
| Tolleranza smoothing altezza trapezi | 0.001 | [daN/cm] |
| Tolleranza smoothing altezza media trapezi | 0.001 | [daN/cm] |

5.1.8 Preferenze del suolo

| | |
|---|----|
| Fondazioni non modellate e struttura bloccata alla base | no |
| Fondazioni bloccate orizzontalmente | si |

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| | | |
|--|----------|-----------|
| Considera peso sismico delle fondazioni | no | |
| Fondazioni superficiali e profonde su suolo elastoplastico | no | |
| Coefficiente di sottofondo verticale per fondazioni superficiali (default) | 3 | [daN/cm3] |
| Rapporto di coefficiente sottofondo orizzontale/verticale | 0.5 | |
| Pressione verticale limite sul terreno per abbassamento (default) | 10 | [daN/cm2] |
| Pressione verticale limite sul terreno per innalzamento (default) | 0.001 | [daN/cm2] |
| Metodo di calcolo della K verticale | Vesic | |
| Metodo di calcolo della portanza e della pressione limite | Vesic | |
| Terreno laterale di riporto da piano posa fondazioni (default) | Ghiaia | |
| Pressione per verifica schiacciamento fondazioni superficiali | 4.7 | [daN/cm2] |
| Calcola cedimenti fondazioni superficiali | no | |
| Spessore massimo strato | 100 | [cm] |
| Profondità massima | 3000 | [cm] |
| Cedimento assoluto ammissibile | 5 | [cm] |
| Cedimento differenziale ammissibile | 5 | [cm] |
| Cedimento relativo ammissibile | 5 | [cm] |
| Rapporto di inflessione F/L ammissibile | 0.003333 | |
| Rotazione rigida ammissibile | 0.191 | [deg] |
| Rotazione assoluta ammissibile | 0.191 | [deg] |
| Distorsione positiva ammissibile | 0.191 | [deg] |
| Distorsione negativa ammissibile | 0.095 | [deg] |
| Considera fondazioni compensate | no | |
| Coefficiente di riduzione della a Max attesa | 0.3 | |

5.2 Azioni e carichi

Sono di seguito elencati i carichi, applicati alla struttura e utilizzati per l'introduzione dei dati nel modello di calcolo.

CARICHI PERMANENTI.

I carichi permanenti considerati sono i seguenti:

- peso proprio degli elementi strutturali;
- carichi permanenti non strutturali (terreno, elementi di finitura, strati di pendenza, ecc.);
- peso di macchinari ed impianti.

In particolare la spinta del terreno in condizioni statiche è stato determinato valutando il coefficiente di spinta attiva K_a mediante la teoria di Coulomb; dai parametri ricavati dalla relazione geologica (tabella 3) si ottiene un valore pari di $K_a = 0.43$. Con questo valore si ricava il valore della sollecitazione al piede dei muri in c.a. che risulta pari a $\sigma = \gamma' \cdot H \cdot K_a$, dove (H) è l'altezza d'interramento della parete della struttura considerata.

CARICHI ACCIDENTALI.

I carichi accidentali considerati sono:

- azioni di piano (sui solai);
- azioni dovute ad eventuali mezzi in manovra (sui muri);
- azioni del liquame all'interno delle vasche;
- azioni della neve.

I carichi agenti sui solai sono quelli previsti da D.M. 14/01/2008

Tabella 3.1.II – Valori dei carichi d'esercizio per le diverse categorie di edifici

| Cat. | Ambienti | q_k [kN/m ²] | Q_k [kN] | H_k [kN/m] |
|------|--|-------------------------------|----------------------|--|
| A | Ambienti ad uso residenziale. Sono compresi in questa categoria i locali di abitazione e relativi servizi, gli alberghi. (ad esclusione delle aree suscettibili di affollamento) | 2,00 | 2,00 | 1,00 |
| B | Uffici. Cat. B1 Uffici non aperti al pubblico Cat. B2 Uffici aperti al pubblico | 2,00 3,00 | 2,00 2,00 | 1,00 1,00 |
| C | Ambienti suscettibili di affollamento Cat. C1 Ospedali, ristoranti, caffè, banche, scuole Cat. C2 Balconi, ballatoi e scale comuni, sale convegni, cinema, teatri, chiese, tribune con posti fissi Cat. C3 Ambienti privi di ostacoli per il libero movimento delle persone, quali musei, sale per esposizioni, stazioni ferroviarie, sale da ballo, palestre, tribune libere, edifici per eventi pubblici, sale da concerto, palazzetti per lo sport e relative tribune | 3,00 4,00 5,00 | 2,00 4,00 5,00 | 1,00 2,00 3,00 |
| D | Ambienti ad uso commerciale. Cat. D1 Negozi Cat. D2 Centri commerciali, mercati, grandi magazzini, librerie... | 4,00 5,00 | 4,00 5,00 | 2,00 2,00 |
| E | Biblioteche, archivi, magazzini e ambienti ad uso industriale. Cat. E1 Biblioteche, archivi, magazzini, depositi, laboratori manifatturieri Cat. E2 Ambienti ad uso industriale, da valutarsi caso per caso | $\geq 6,00$ — | 6,00 — | 1,00* — |
| F-G | Rimesse e parcheggi. Cat. F Rimesse e parcheggi per il transito di automezzi di peso a pieno carico fino a 30 kN Cat. G Rimesse e parcheggi per transito di automezzi di peso a pieno carico superiore a 30 kN: da valutarsi caso per caso | 2,50 — | 2 x 10,00 — | 1,00** — |
| H | Coperture e sottotetti Cat. H1 Coperture e sottotetti accessibili per sola manutenzione Cat. H2 Coperture praticabili Cat. H3 Coperture speciali (impianti, eliporti, altri) da valutarsi caso per caso | 0,50 — — | 1,20 — — | 1,00 secondo categoria di appartenenza — |

* non comprende le azioni orizzontali eventualmente esercitate dai materiali immagazzinati
 ** per i soli parapetti o partizioni nelle zone pedonali. Le azioni sulle barriere esercitate dagli automezzi dovranno essere valutate caso per caso

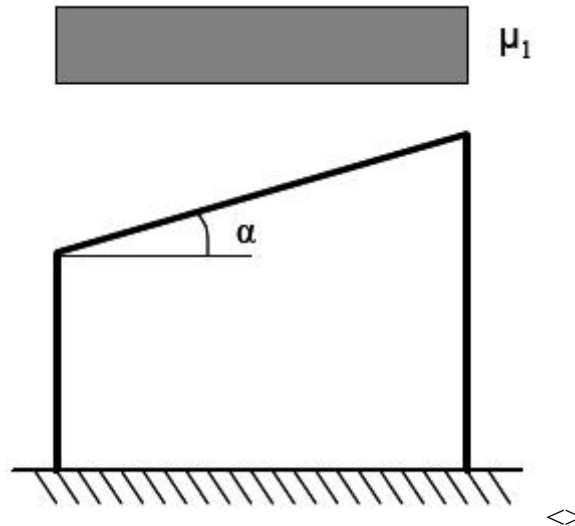
In particolare per i solai esterni si sono considerati i carichi del Cat. E2 valutando il carico accidentale pari a 9.00 kN/m² (possibile presenza di automezzi leggeri) mentre per i solai interni si è sempre fatto riferimento alla cat. E2 valutando il carico in 8.50 kN/m² (presenza occasionale di personale e delle soffianti).

Per quanto riguarda il carico accidentale dovuto ai mezzi in manovra sull'area intorno alle vasche. La sollecitazione agisce sulla parte interrata delle strutture ed è data dal carico dei mezzi stimato a 9.00 kN/m² (carico distribuito di prima categoria della Tabella 5.1. del DM14-01-08) moltiplicato per il coeff. di spinta attiva di Coulomb come descritto al punto 5.2.1.

Per quanto riguarda il peso del liquame si è previsto un valore pari a 11.00 kN/m³, tale valore è stato considerato agente sulle fondazioni e sui muri.

Il calcolo della neve è stato valutato secondo quanto previsto dal D.M. 14/01/2008





- Regione: Marche
- Provincia: Pesaro e Urbino
- Ubicazione: Zona I - Mediterranea
- Quota sito s.l.m.m. a_s : 8.5 m
- Topografia: Battuta dai venti
- Coefficiente di esposizione C_E : 0,9
- Coefficiente termico C_t : 1,00
- Valore caratteristico di carico neve al suolo ($T_R=50$ anni) q_{sk} : 1,50 kN/m²
- Angolo α della falda sull'orizzontale: 0°
- Coefficiente di forma μ_1 : 0,80
- Carico neve q : 1,08 kN/m²

SPINTA SISMICA TERRENO.

Il calcolo della spinta sismica del terreno sulle pareti verrà calcolata mediante la formula di Wood come indicato nell'Eurocodice 8 parte 5 al punto E.9 dell'appendice E.

$$\Delta P_d = \alpha * S * \gamma * H^2 \text{ formula valida per strutture rigide}$$

essendo

$$K_h = \frac{\alpha * S}{r} \text{ [formula 7.1 del cap. 7.3.2.2 Eurocodice 8 parte 5];}$$

$r = 1$ [tabella 7.1 del cap. 7.3.2.2 Eurocodice 8 parte 5];

γ = peso specifico terreno

H = altezza parete

si ha:

$$\Delta P_d = K_h * \gamma * H^2$$

essendo

$$K_h = \beta_m * \frac{a_{\max}}{g} \text{ [formula 7.11.6 delle NTC 2008]}$$

Dalla relazione geologica si ha:

$$a_{\max} = S * a_g = S_s * S_t * a_g = 1.47 * 1.00 * 0.159g = 0.24g$$

Essendo i muri del manufatto non in grado di subire spostamenti relativi rispetto al terreno si assume $\beta_m = 1$ da cui

$$K_h = 0.24$$

SPINTA SISMICA LIQUAME.

Le vasche oggetto della presente sono in c.a. e seminterrate e pertanto possono essere considerate come un contenitore rigido.

Le azioni idrodinamiche agenti sono date dalla sovrapposizione delle pressioni idrodinamiche impulsive e da quelle convettive.

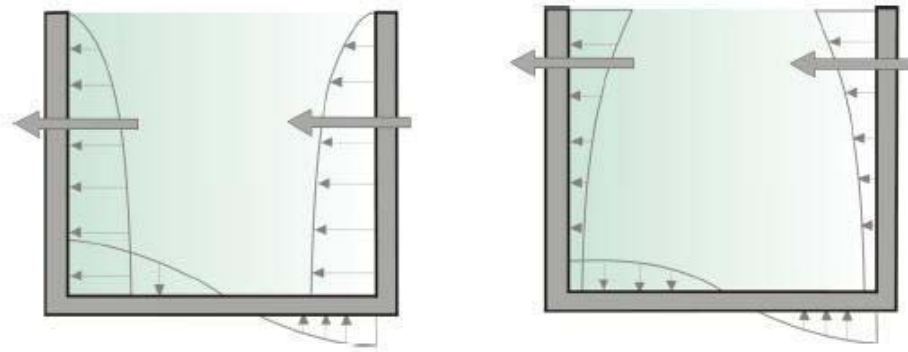
Per la valutazione di queste si fa riferimento all'Eurocodice 8 Parte 4, in particolare per la valutazione delle pressioni idrodinamiche impulsive si fa riferimento alla formule di HOUSNER:

$$p_i = \gamma \times \alpha \times H \times \sqrt{3} \times \left[\frac{z}{H} - 0.5 \times \left(\frac{z}{H} \right)^2 \right] \times \tanh \left(\sqrt{3} \times \frac{R}{H} \right)$$

$$p_b = \gamma \times \alpha \times H \times \frac{\sqrt{3} \times \sinh \left(\sqrt{3} \times \frac{x}{H} \right)}{2 \times \cosh \left(\sqrt{3} \times \frac{R}{H} \right)}$$

p_i pressione impulsiva sulla parete alla profondità z a partire dal pelo libero

p_b pressione impulsiva sul fondo a partire dall'asse del contenitore



Distribuzione qualitativa della componente impulsiva (a sinistra) e convettiva (a destra) causate da un terremoto orizzontale

* Housner, George, "Analisi dinamica dei fluidi in contenitori sottoposti ad accelerazione. Reattori nucleari e terremoti." Report No. TID 7024, U.S. Atomic Energy Commission, Washington D.C., 1963.

La variazione spazio-temporale per la componente impulsiva è data dalla (A.1) Appendice A dell'Eurocodice 8:

$$p_i(\varepsilon, \mu, \theta, t) = C_i(\varepsilon, \mu) \rho H \cos \theta A_g(t)$$

La variazione spazio-temporale per la componente convettiva è data da (A.7) Appendice A dell'Eurocodice 8:

$$p_c(\varepsilon, \mu, \theta, t) = \rho \sum_{n=1}^{\infty} \psi_n \cosh(\lambda_n \gamma \zeta) J_1(\lambda_n \varepsilon) \cos \theta A_{cn}(t)$$

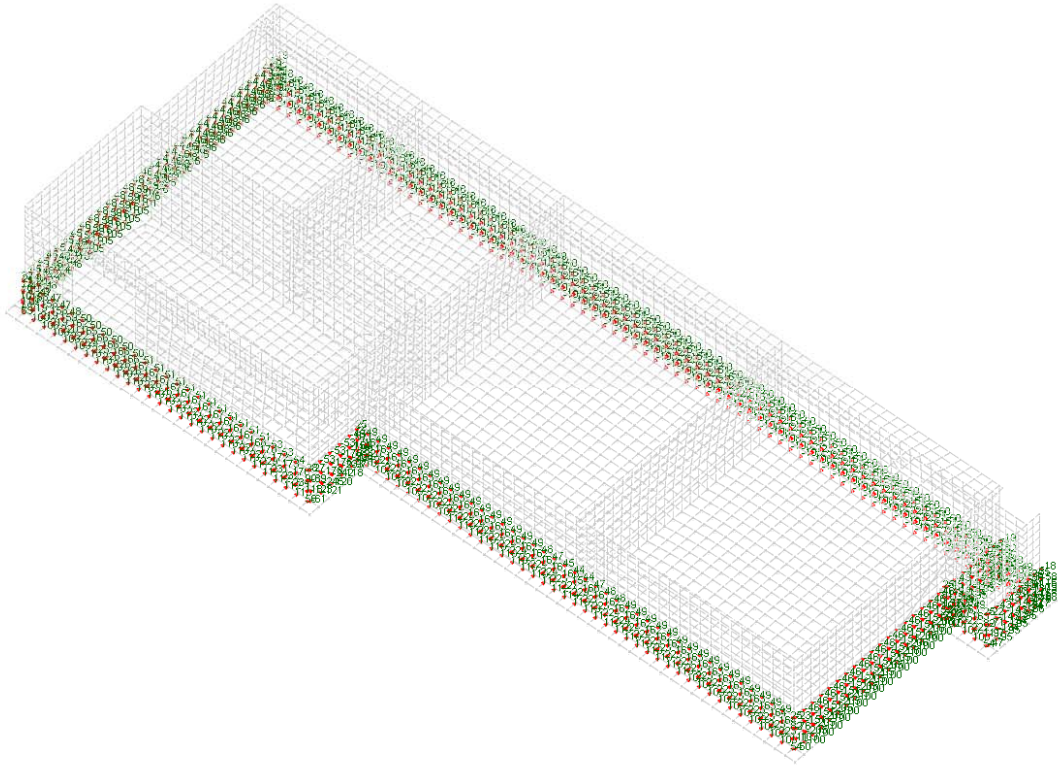
5.2.1 Condizioni elementari di carico

- Descrizione:** Nome assegnato alla condizione elementare.
Nome breve: Nome breve assegnato alla condizione elementare.
I/II: Descrive la classificazione della condizione (necessario per strutture in acciaio e in legno).
Durata: Descrive la durata della condizione (necessario per strutture in legno).
Psi0: Coefficiente moltiplicatore Psi0. Il valore è adimensionale.
Psi1: Coefficiente moltiplicatore Psi1. Il valore è adimensionale.
Psi2: Coefficiente moltiplicatore Psi2. Il valore è adimensionale.
Var.segno: Descrive se la condizione elementare ha la possibilità di variare di segno.

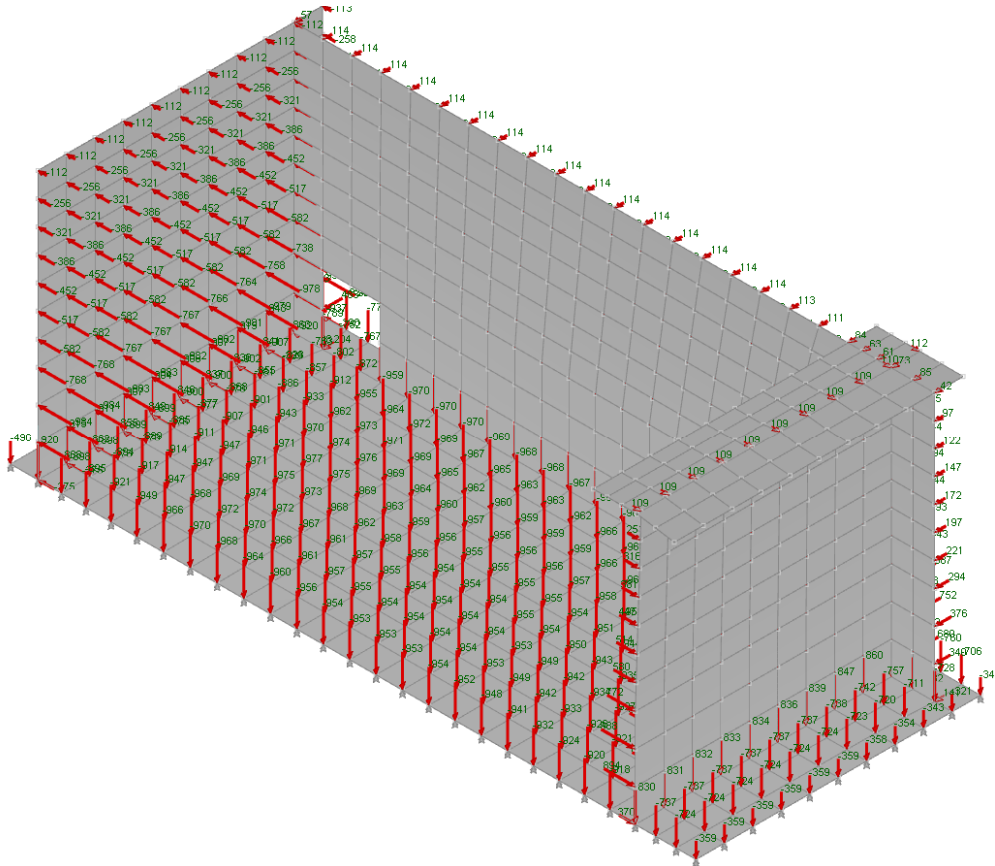
| Descrizione | Nome breve | I/II | Durata | Psi0 | Psi1 | Psi2 | Var.segno |
|--------------------------------|------------------------|------|------------|------|------|------|-----------|
| Pesi strutturali | Pesi | | Permanente | 0 | 0 | 0 | |
| Permanenti portati | Port. | I | Permanente | 0 | 0 | 0 | |
| Permanenti macchine | Permanenti macchine | I | Permanente | 1 | 1 | 1 | |
| Spinta terreno | Spinta terreno | I | Permanente | 0 | 0 | 0 | |
| Variabile A | Variabile A | I | Media | 0.7 | 0.5 | 0.3 | |
| Neve | Neve | I | Media | 0.5 | 0.2 | 0 | |
| Spinta sismica terreno | Spinta sismica terreno | I | Media | 0 | 0 | 0 | |
| Spinta sismica liquame | Spinta sismica liquame | I | Media | 0 | 0 | 0 | |
| Liquame | Liquame | I | Permanente | 0 | 0 | 0 | |
| Delta T | Dt | II | Media | 0.6 | 0.5 | 0 | No |
| Sisma X SLV | X SLV | | | 0 | 0 | 0 | |
| Sisma Y SLV | Y SLV | | | 0 | 0 | 0 | |
| Sisma Z SLV | Z SLV | | | 0 | 0 | 0 | |
| Eccentricità Y per sisma X SLV | EY SLV | | | 0 | 0 | 0 | |
| Eccentricità X per sisma Y SLV | EX SLV | | | 0 | 0 | 0 | |
| Sisma X SLD | X SLD | | | 0 | 0 | 0 | |
| Sisma Y SLD | Y SLD | | | 0 | 0 | 0 | |
| Sisma Z SLD | Z SLD | | | 0 | 0 | 0 | |
| Eccentricità Y per sisma X SLD | EY SLD | | | 0 | 0 | 0 | |
| Eccentricità X per sisma Y SLD | EX SLD | | | 0 | 0 | 0 | |
| Rig. Ux | R Ux | | | 0 | 0 | 0 | |

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| Descrizione | Nome breve | I/II | Durata | Psi0 | Psi1 | Psi2 | Var.segno |
|-------------|------------|------|--------|------|------|------|-----------|
| Rig. Uy | R Uy | | | 0 | 0 | 0 | |
| Rig. Rz | R Rz | | | 0 | 0 | 0 | |



Spinta terreno



Vista parziale spinta liquame

5.2.2 Combinazioni di carico

Tutte le combinazioni di carico vengono raggruppate per famiglia di appartenenza. Le celle di una riga contengono i coefficienti moltiplicatori della i-esima combinazione, dove il valore della prima cella è da intendersi come moltiplicatore associato alla prima condizione elementare, la seconda cella si riferisce alla seconda condizione elementare e così via.

Famiglia SLU

Il nome compatto della famiglia è SLU.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno | Spinta sismica liquame | Liquame | Dt |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|------------------------|---------|----|
| 1 | SLU 1 | 1.3 | 1.3 | 1.3 | 1.3 | 1.5 | 0.75 | 0 | 0 | 1.5 | 0 |
| 2 | SLU 2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.05 | 1.5 | 0 | 0 | 1.5 | 0 |
| 3 | SLU 3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.05 | 0.75 | 0 | 0 | 1.5 | 0 |

Famiglia SLE rara

Il nome compatto della famiglia è SLE RA.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno | Spinta sismica liquame | Liquame | Dt |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|------------------------|---------|----|
| 1 | SLE RA 1 | 1 | 1 | 1 | 1 | 1 | 0.5 | 0 | 0 | 1 | 0 |

Famiglia SLE frequente

Il nome compatto della famiglia è SLE FR.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno | Spinta sismica liquame | Liquame | Dt |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|------------------------|---------|----|
| 1 | SLE FR 1 | 1 | 1 | 1 | 1 | 0.5 | 0 | 0 | 0 | 0.6 | 0 |
| 2 | SLE FR 2 | 1 | 1 | 1 | 1 | 0.3 | 0.2 | 0 | 0 | 0.6 | 0 |
| 3 | SLE FR 3 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 | 0 | 0.9 | 0 |

Famiglia SLE quasi permanente

Il nome compatto della famiglia è SLE QP.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno | Spinta sismica liquame | Liquame | Dt |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|------------------------|---------|----|
| 1 | SLE QP 1 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 | 0 | 0.6 | 0 |

Famiglia SLD

Il nome compatto della famiglia è SLD.

Poiché il numero di condizioni elementari previste per le combinazioni di questa famiglia è cospicuo, la tabella verrà spezzata in più parti.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|
| 1 | SLD 1 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 2 | SLD 2 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 3 | SLD 3 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 4 | SLD 4 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 5 | SLD 5 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 6 | SLD 6 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 7 | SLD 7 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 8 | SLD 8 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 9 | SLD 9 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 10 | SLD 10 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 11 | SLD 11 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 12 | SLD 12 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 13 | SLD 13 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 14 | SLD 14 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 15 | SLD 15 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 16 | SLD 16 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |

| Nome | Nome breve | Spinta sismica liquame | Liquame | Dt | X SLD | Y SLD | Z SLD | EY SLD |
|------|------------|------------------------|---------|----|-------|-------|-------|--------|
| 1 | SLD 1 | 1 | 1 | 0 | -1 | -0.3 | 0 | -1 |
| 2 | SLD 2 | 1 | 1 | 0 | -1 | -0.3 | 0 | 1 |
| 3 | SLD 3 | 1 | 1 | 0 | -1 | 0.3 | 0 | -1 |
| 4 | SLD 4 | 1 | 1 | 0 | -1 | 0.3 | 0 | 1 |
| 5 | SLD 5 | -0.3 | 1 | 0 | -0.3 | -1 | 0 | -0.3 |
| 6 | SLD 6 | -0.3 | 1 | 0 | -0.3 | -1 | 0 | 0.3 |
| 7 | SLD 7 | -0.3 | 1 | 0 | -0.3 | 1 | 0 | -0.3 |
| 8 | SLD 8 | -0.3 | 1 | 0 | -0.3 | 1 | 0 | 0.3 |
| 9 | SLD 9 | 0.3 | 1 | 0 | 0.3 | -1 | 0 | -0.3 |
| 10 | SLD 10 | 0.3 | 1 | 0 | 0.3 | -1 | 0 | 0.3 |
| 11 | SLD 11 | 0.3 | 1 | 0 | 0.3 | 1 | 0 | -0.3 |
| 12 | SLD 12 | 0.3 | 1 | 0 | 0.3 | 1 | 0 | 0.3 |
| 13 | SLD 13 | 1 | 1 | 0 | 1 | -0.3 | 0 | -1 |
| 14 | SLD 14 | 1 | 1 | 0 | 1 | -0.3 | 0 | 1 |
| 15 | SLD 15 | 1 | 1 | 0 | 1 | 0.3 | 0 | -1 |
| 16 | SLD 16 | 1 | 1 | 0 | 1 | 0.3 | 0 | 1 |

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Famiglia SLV

Il nome compatto della famiglia è SLV.

Poiché il numero di condizioni elementari previste per le combinazioni di questa famiglia è cospicuo, la tabella verrà spezzata in più parti.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|
| 1 | SLV 1 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 2 | SLV 2 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 3 | SLV 3 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 4 | SLV 4 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 5 | SLV 5 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 6 | SLV 6 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 7 | SLV 7 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 8 | SLV 8 | 1 | 1 | 1 | 1 | 0.3 | 0 | -0.3 |
| 9 | SLV 9 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 10 | SLV 10 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 11 | SLV 11 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 12 | SLV 12 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0.3 |
| 13 | SLV 13 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 14 | SLV 14 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 15 | SLV 15 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |
| 16 | SLV 16 | 1 | 1 | 1 | 1 | 0.3 | 0 | 1 |

| Nome | Nome breve | Spinta sismica liquame | Liquame | Dt | X SLV | Y SLV | Z SLV | EY SLV |
|------|------------|------------------------|---------|----|-------|-------|-------|--------|
| 1 | SLV 1 | 1 | 1 | 0 | -1 | -0.3 | 0 | -1 |
| 2 | SLV 2 | 1 | 1 | 0 | -1 | -0.3 | 0 | 1 |
| 3 | SLV 3 | 1 | 1 | 0 | -1 | -0.3 | 0 | -1 |
| 4 | SLV 4 | 1 | 1 | 0 | -1 | 0.3 | 0 | 1 |
| 5 | SLV 5 | -0.3 | 1 | 0 | -0.3 | -1 | 0 | -0.3 |
| 6 | SLV 6 | -0.3 | 1 | 0 | -0.3 | -1 | 0 | 0.3 |
| 7 | SLV 7 | -0.3 | 1 | 0 | -0.3 | 1 | 0 | -0.3 |
| 8 | SLV 8 | -0.3 | 1 | 0 | -0.3 | 1 | 0 | 0.3 |
| 9 | SLV 9 | 0.3 | 1 | 0 | 0.3 | -1 | 0 | -0.3 |
| 10 | SLV 10 | 0.3 | 1 | 0 | 0.3 | -1 | 0 | 0.3 |
| 11 | SLV 11 | 0.3 | 1 | 0 | 0.3 | 1 | 0 | -0.3 |
| 12 | SLV 12 | 0.3 | 1 | 0 | 0.3 | 1 | 0 | 0.3 |
| 13 | SLV 13 | 1 | 1 | 0 | 1 | -0.3 | 0 | -1 |
| 14 | SLV 14 | 1 | 1 | 0 | 1 | -0.3 | 0 | 1 |
| 15 | SLV 15 | 1 | 1 | 0 | 1 | 0.3 | 0 | -1 |
| 16 | SLV 16 | 1 | 1 | 0 | 1 | 0.3 | 0 | 1 |

Famiglia SLV fondazioni

Il nome compatto della famiglia è SLV FO.

Poiché il numero di condizioni elementari previste per le combinazioni di questa famiglia è cospicuo, la tabella verrà spezzata in più parti.

| Nome | Nome breve | Pesi | Port. | Permanenti macchine | Spinta terreno | Variabile A | Neve | Spinta sismica terreno |
|------|------------|------|-------|---------------------|----------------|-------------|------|------------------------|
| 1 | SLV FO 1 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 2 | SLV FO 2 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 3 | SLV FO 3 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 4 | SLV FO 4 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 5 | SLV FO 5 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 6 | SLV FO 6 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 7 | SLV FO 7 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 8 | SLV FO 8 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 9 | SLV FO 9 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 10 | SLV FO 10 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 11 | SLV FO 11 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 12 | SLV FO 12 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 13 | SLV FO 13 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 14 | SLV FO 14 | 1 | 1 | 1 | 0 | 0.3 | 0 | 0 |
| 15 | SLV FO 15 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |
| 16 | SLV FO 16 | 1 | 1 | 1 | 1 | 0.3 | 0 | 0 |

| Nome | Nome breve | Spinta sismica liquame | Liquame | Dt | X SLV | Y SLV | Z SLV | EY SLV |
|------|------------|------------------------|---------|----|-------|-------|-------|--------|
| 1 | SLV FO 1 | 0 | 1 | 0 | -1.1 | -0.33 | 0 | -1.1 |
| 2 | SLV FO 2 | 0 | 1 | 0 | -1.1 | -0.33 | 0 | 1.1 |
| 3 | SLV FO 3 | 0 | 1 | 0 | -1.1 | 0.33 | 0 | -1.1 |
| 4 | SLV FO 4 | 0 | 1 | 0 | -1.1 | 0.33 | 0 | 1.1 |
| 5 | SLV FO 5 | 0 | 1 | 0 | -0.33 | -1.1 | 0 | -0.33 |
| 6 | SLV FO 6 | 0 | 1 | 0 | -0.33 | -1.1 | 0 | 0.33 |
| 7 | SLV FO 7 | 0 | 1 | 0 | -0.33 | 1.1 | 0 | -0.33 |
| 8 | SLV FO 8 | 0 | 1 | 0 | -0.33 | 1.1 | 0 | 0.33 |
| 9 | SLV FO 9 | 0 | 1 | 0 | 0.33 | -1.1 | 0 | -0.33 |
| 10 | SLV FO 10 | 0 | 1 | 0 | 0.33 | -1.1 | 0 | 0.33 |
| 11 | SLV FO 11 | 0 | 1 | 0 | 0.33 | 1.1 | 0 | -0.33 |
| 12 | SLV FO 12 | 0 | 1 | 0 | 0.33 | 1.1 | 0 | 0.33 |
| 13 | SLV FO 13 | 0 | 1 | 0 | 1.1 | -0.33 | 0 | -1.1 |
| 14 | SLV FO 14 | 0 | 1 | 0 | 1.1 | -0.33 | 0 | 1.1 |
| 15 | SLV FO 15 | 0 | 1 | 0 | 1.1 | 0.33 | 0 | -1.1 |
| 16 | SLV FO 16 | 0 | 1 | 0 | 1.1 | 0.33 | 0 | 1.1 |

Famiglia Calcolo rigidezza torsionale/flessionale di piano

Il nome compatto della famiglia è CRTFP.

| Nome | Nome breve | R Ux | R Uy | R Rz |
|------|------------|------|------|------|
|------|------------|------|------|------|

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| Nome | Nome breve | R Ux | R Uy | R Rz |
|----------|------------|------|------|------|
| Rig. Ux+ | CRTFP Ux+ | 1 | 0 | 0 |
| Rig. Ux- | CRTFP Ux- | -1 | 0 | 0 |
| Rig. Uy+ | CRTFP Uy+ | 0 | 1 | 0 |
| Rig. Uy- | CRTFP Uy- | 0 | -1 | 0 |
| Rig. Rz+ | CRTFP Rz+ | 0 | 0 | 1 |
| Rig. Rz- | CRTFP Rz- | 0 | 0 | -1 |

5.2.3 Definizioni di carichi superficiali

Nome: Nome identificativo della definizione di carico.

Valori: Valori associati alle condizioni di carico.

Condizione: Condizione di carico a cui sono associati i valori.

Descrizione: Nome assegnato alla condizione elementare.

Valore: Modulo del carico superficiale applicato alla superficie. [daN/cm²]

Applicazione: Modalità con cui il carico è applicato alla superficie.

| Nome | Valori | | |
|------------------------|---------------------------|-------------------------|-------------------------|
| | Condizione Descrizione | Valore | Applicazione |
| solaio compressori | Pesi strutturali | 0 | Verticale |
| | Permanenti portati | 0.015 | Verticale |
| | Permanenti macchine | 0.07 | Verticale |
| | Spinta terreno | 0 | Verticale |
| | Variabile A | 0.02 | Verticale |
| | Neve | 0 | Verticale |
| | Spinta sismica terreno | 0 | Verticale |
| | Spinta sismica liquame | 0 | Verticale |
| | Liquame | 0 | Verticale |
| | Copertura | Pesi strutturali | 0 |
| Platea | Permanenti portati | 0.015 | Verticale |
| | Permanenti macchine | 0 | Verticale |
| | Spinta terreno | 0 | Verticale |
| | Variabile A | 0 | Verticale |
| | Neve | 0.011 | Verticale |
| | Spinta sismica terreno | 0 | Verticale |
| | Spinta sismica liquame | 0 | Verticale |
| | Liquame | 0 | Verticale |
| | Pesi strutturali | 0 | Verticale |
| | Permanenti portati | 0 | Verticale |
| Passerella | Permanenti macchine | 0 | Verticale |
| | Spinta terreno | 0 | Verticale |
| | Variabile A | 0.04 | Verticale in proiezione |
| | Neve | 0 | Verticale |
| | Spinta sismica terreno | 0 | Verticale |
| | Spinta sismica liquame | 0 | Verticale |
| | Liquame | 0 | Verticale |
| | Pesi strutturali | 0 | Verticale |
| | Permanenti portati | 0.005 | Verticale in proiezione |
| | Permanenti macchine | 0 | Verticale |
| Passerella | Spinta terreno | 0 | Verticale |
| | Variabile A | 0.04 | Verticale in proiezione |
| | Neve | 0 | Verticale |
| | Spinta sismica terreno | 0 | Verticale |
| | Spinta sismica liquame | 0 | Verticale |
| | Liquame | 0 | Verticale |
| | Pesi strutturali | 0 | Verticale |
| | Permanenti portati | 0.005 | Verticale in proiezione |
| | Permanenti macchine | 0 | Verticale |
| | Spinta terreno | 0 | Verticale |
| Variabile A | 0.04 | Verticale in proiezione | |
| Neve | 0 | Verticale | |
| Spinta sismica terreno | 0 | Verticale | |
| Spinta sismica liquame | 0 | Verticale | |
| Liquame | 0 | Verticale | |

5.2.4 Definizioni di carichi potenziali

Nome: Nome identificativo della definizione di carico.

Valori: Valori associati alle condizioni di carico.

Condizione: Condizione di carico a cui sono associati i valori.

Descrizione: Nome assegnato alla condizione elementare.

Valore i.: Valore del carico pressorio alla quota iniziale. [daN/cm²]

Quota i.: Quota assoluta in cui il carico pressorio assume il valore iniziale. [cm]

Valore f.: Valore del carico pressorio alla quota finale. [daN/cm²]

Quota f.: Quota assoluta in cui il carico pressorio assume il valore finale. [cm]

| Nome | Valori | | | | |
|-------------------|---------------------------|------------------|----------|-----------|----------|
| | Condizione Descrizione | Valore i. | Quota i. | Valore f. | Quota f. |
| A - pareti dentro | Pesi strutturali | 0 | 0 | 0 | 0 |
| | Permanenti portati | 0 | 0 | 0 | 0 |
| | Permanenti macchine | 0 | 300 | 0 | 0 |
| | Spinta terreno | 0.14 | 0 | 0 | 165 |
| | Variabile A | 0.09 | 0 | 0.09 | 165 |
| | Neve | 0 | 300 | 0 | 0 |
| | Spinta sismica terreno | 0.13 | 0 | 0 | 165 |
| | Spinta sismica liquame | -0.1 | 0 | -0.1 | 568 |
| | Liquame | -0.42 | 0 | 0 | 568 |
| | B - pareti dentro | Pesi strutturali | 0 | 0 | 0 |
| B - pareti dentro | Permanenti portati | 0 | 0 | 0 | 0 |
| | Permanenti macchine | 0 | 300 | 0 | 0 |
| | Spinta terreno | 0 | 0 | 0 | 0 |
| | Variabile A | 0 | 0 | 0 | 0 |
| | Neve | 0 | 300 | 0 | 0 |
| | Spinta sismica terreno | 0 | 0 | 0 | 0 |
| | Spinta sismica liquame | -0.1 | 0 | -0.1 | 568 |
| | Liquame | -0.42 | 0 | 0 | 568 |

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| Nome | Condizione | Valore i. | Valori | | | |
|-----------------------------|------------------------|-----------------------|----------|-----------|----------|---|
| | | | Quota i. | Valore f. | Quota f. | |
| C - pareti loc. compressori | Pesi strutturali | 0 | 0 | 0 | 0 | |
| | Permanententi portati | 0 | 0 | 0 | 0 | |
| | Permanententi macchine | 0 | 300 | 0 | 0 | |
| | Spinta terreno | 0.14 | 0 | 0 | 165 | |
| | Variabile A | 0.09 | 0 | 0.09 | 165 | |
| | Neve | 0 | 300 | 0 | 0 | |
| | Spinta sismica terreno | 0.13 | 0 | 0.13 | 165 | |
| | Spinta sismica liquame | 0 | 0 | 0 | 0 | |
| | Liquame | 0 | 0 | 0 | 0 | |
| | D - pareti ossidazione | Pesi strutturali | 0 | 0 | 0 | 0 |
| D - pareti ossidazione | Permanententi portati | 0 | 0 | 0 | 0 | |
| | Permanententi macchine | 0 | 300 | 0 | 0 | |
| | Spinta terreno | 0.14 | 0 | 0 | 165 | |
| | Variabile A | 0.09 | 0 | 0.09 | 165 | |
| | Neve | 0 | 300 | 0 | 0 | |
| | Spinta sismica terreno | 0.13 | 0 | 0.13 | 165 | |
| | Spinta sismica liquame | -0.15 | 0 | -0.15 | 568 | |
| | Liquame | -0.42 | 0 | 0 | 568 | |
| | E - pareti ossidazione | Pesi strutturali | 0 | 0 | 0 | 0 |
| | E - pareti ossidazione | Permanententi portati | 0 | 0 | 0 | 0 |
| Permanententi macchine | | 0 | 300 | 0 | 0 | |
| Spinta terreno | | 0 | 0 | 0 | 0 | |
| Variabile A | | 0 | 0 | 0 | 0 | |
| Neve | | 0 | 300 | 0 | 0 | |
| Spinta sismica terreno | | 0 | 0 | 0 | 0 | |
| Spinta sismica liquame | | -0.15 | 0 | -0.15 | 568 | |
| Liquame | | -0.42 | 0 | 0 | 568 | |

5.3 Quote

5.3.1 Livelli

Descrizione breve: Nome sintetico assegnato al livello.

Descrizione: Nome assegnato al livello.

Quota: Quota superiore espressa nel sistema di riferimento assoluto. [cm]

Spessore: Spessore del livello. [cm]

| Descrizione breve | Descrizione | Quota | Spessore |
|-------------------|-------------|-------|----------|
| L1 | Fondazione | 0 | 40 |
| L2 | Piano 1 | 165 | 30 |
| L3 | Piano 2 | 455 | 20 |
| L4 | Piano 3 | 568 | 28 |

5.3.2 Tronchi

Descrizione breve: Nome sintetico assegnato al tronco.

Descrizione: Nome assegnato al tronco.

Quota 1: Riferimento della prima quota di definizione del tronco. esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Quota 2: Riferimento della seconda quota di definizione del tronco. esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

| Descrizione breve | Descrizione | Quota 1 | Quota 2 |
|-------------------|----------------------|------------|---------|
| T1 | Fondazione - Piano 1 | Fondazione | Piano 1 |
| T2 | Piano 1 - Piano 2 | Piano 1 | Piano 2 |
| T3 | Piano 2 - Piano 3 | Piano 2 | Piano 3 |
| T4 | Piano 1 - Piano 3 | Piano 1 | Piano 3 |

5.4 Elementi di input

5.4.1 Fili fissi

5.4.1.1 Fili fissi di piano

Livello: Quota di inserimento espressa con notazione breve esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Punto: Punto di inserimento.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Estradosso: Distanza dalla quota di inserimento misurata in direzione ortogonale al piano della quota e con verso positivo verso l'alto. [cm]

Angolo: Angolo misurato dal semiasse positivo delle ascisse in verso antiorario. [deg]

Tipo: Tipo di simbolo.

T.c.: Testo completo visualizzato accanto al filo fisso, costituito dalla concatenazione del prefisso e del testo.

| Livello | Punto | | Estradosso | Angolo | Tipo | T.c. | Livello | Punto | | Estradosso | Angolo | Tipo | T.c. |
|---------|--------|--------|------------|--------|--------|------|---------|--------|--------|------------|--------|--------|------|
| | X | Y | | | | | | X | Y | | | | |
| L1 | 2420 | 1397.5 | 0 | 180 | Angolo | 17 | L1 | 3420 | 1090 | 0 | 0 | Angolo | 18 |
| L1 | 3437.5 | 1340 | 0 | 270 | Angolo | 19 | L1 | 1385 | 1397.5 | 0 | 180 | Angolo | 14 |
| L1 | 2402.5 | 270 | 0 | 0 | Angolo | 15 | L1 | 2402.5 | 1340 | 0 | 180 | Angolo | 16 |
| L1 | 3455 | 270 | 0 | 90 | Angolo | 20 | L1 | 3650.7 | 1090 | 0 | 90 | Angolo | 24 |
| L1 | 3650.7 | 1340 | 0 | 180 | Angolo | 25 | L1 | 3650.7 | 1392.5 | 0 | 180 | Angolo | 26 |
| L1 | 3455 | 1397.5 | 0 | 180 | Angolo | 21 | L1 | 3505 | 610 | 0 | 90 | Croce | 22 |
| L1 | 3505 | 1090 | 0 | 90 | Croce | 23 | L1 | 0 | 1340 | 0 | 270 | Angolo | 4 |

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| Livello | Punto | | Estradosso | Angolo | Tipo | T.c. | Livello | Punto | | Estradosso | Angolo | Tipo | T.c. |
|---------|--------|--------|------------|--------|--------|------|---------|-------|--------|------------|--------|--------|------|
| | X | Y | | | | | | X | Y | | | | |
| L1 | 0 | 1397.5 | 0 | 270 | Angolo | 5 | L1 | 692.5 | 1340 | 0 | 270 | Angolo | 6 |
| L1 | 0 | 0 | 0 | 0 | Angolo | 1 | L1 | 0 | 345 | 0 | 270 | Angolo | 2 |
| L1 | 0 | 665 | 0 | 0 | Angolo | 3 | L1 | 710 | 630 | 0 | 90 | Angolo | 7 |
| L1 | 1385 | 270 | 0 | 90 | Angolo | 11 | L1 | 1385 | 345 | 0 | 180 | Angolo | 12 |
| L1 | 1385 | 630 | 0 | 180 | Angolo | 13 | L1 | 710 | 1397.5 | 0 | 180 | Angolo | 8 |
| L1 | 1367.5 | 1340 | 0 | 270 | Angolo | 9 | L1 | 1385 | 0 | 0 | 90 | Angolo | 10 |

5.4.2 Fondazioni di piastre

Descrizione breve: Descrizione breve usata nelle tabelle dei capitoli delle piastre di fondazione.

Stratigrafia: Stratigrafia del terreno nel punto medio in pianta dell'elemento.

Sondaggio: E' possibile indicare esplicitamente un sondaggio definito nelle preferenze oppure richiedere di estrapolare il sondaggio dalla definizione del sito espressa nelle preferenze.

Estradosso: Distanza dalla quota superiore del sondaggio misurata in verticale con verso positivo verso l'alto. [cm]

Deformazione volumetrica: Valore della deformazione volumetrica impiegato nel calcolo della pressione limite a rottura con la formula di Vesic. Il valore è adimensionale. Accetta anche il valore di default espresso nelle preferenze.

K verticale: Coefficiente di sottofondo verticale del letto di molle. [daN/cm³]

Limite compressione: Pressione limite di plasticizzazione a compressione del letto di molle. [daN/cm²]

Limite trazione: Pressione limite di plasticizzazione a trazione del letto di molle. [daN/cm²]

| Descrizione breve | Sondaggio | Stratigrafia Estradosso | Deformazione volumetrica | K verticale | Limite compressione | Limite trazione |
|-------------------|---------------------|-------------------------|--------------------------|-------------|---------------------|-----------------|
| FS1 | Piu' vicino in sito | 0 | | Default (3) | Default (10) | Default (0.001) |

5.4.3 Piastre C.A.

5.4.3.1 Piastre C.A. di piano

Livello: Quota di inserimento espressa con notazione breve esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Sp.: Spessore misurato in direzione ortogonale al piano medio dell'elemento. [cm]

Punti: Punti di definizione in pianta.

I.: Indice del punto corrente nell'insieme dei punti di definizione dell'elemento.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Estr.: Distanza dalla quota di inserimento misurata in direzione ortogonale al piano della quota e con verso positivo verso l'alto. [cm]

Mat.: Riferimento ad una definizione di materiale cemento armato.

Car.sup.: Riferimento alla definizione di un carico superficiale. Accetta anche il valore "Nessuno".

Car.pot.: Riferimento alla definizione di un carico potenziale. Accetta anche il valore "Nessuno".

DeltaT: Riferimento alla definizione di una variazione termica. Accetta anche il valore "Nessuno".

Sovr.: Aliquota di sovrarresistenza da assicurare in verifica.

S.Z.: Indica se l'elemento deve essere verificato considerando il sisma verticale.

P.sup.: Peso per unità di superficie. [daN/cm²]

Fond.: Riferimento alla fondazione sottostante l'elemento.

Fori: Riferimenti a tutti gli elementi che forano la piastra.

| Livello | Sp. | Punti | | | Estr. | Mat. | Car.sup. | Car.pot. | DeltaT | Sovr. | S.Z. | P.sup. | Fond. | Fori |
|---------|-----|-------|--------|--------|-------|--------|------------|----------|--------|-------|------|--------|-------|------|
| | | I. | X | Y | | | | | | | | | | |
| L1 | 40 | 1 | -30 | -30 | 0 | C32/40 | Platea | | | 0 | No | 0.1 | FS1 | |
| | | 2 | 1415 | -30 | | | | | | | | | | |
| | | 3 | 1415 | 240 | | | | | | | | | | |
| | | 4 | 3485 | 240 | | | | | | | | | | |
| | | 5 | 3485 | 1060 | | | | | | | | | | |
| | | 6 | 3680.7 | 1060 | | | | | | | | | | |
| | | 7 | 3680.7 | 1427.5 | | | | | | | | | | |
| | | 8 | -30 | 1427.5 | | | | | | | | | | |
| L3 | 30 | 1 | 3040 | 1247.5 | 0 | C32/40 | Passerella | | | 0 | No | 0.075 | | H1 |
| | | 2 | 3040 | 1142.5 | | | | | | | | | | |
| | | 3 | 3280 | 1142.5 | | | | | | | | | | |
| | | 4 | 3280 | 1247.5 | | | | | | | | | | |
| | | 5 | 3455 | 1247.5 | | | | | | | | | | |
| | | 6 | 3455 | 1397.5 | | | | | | | | | | |
| | | 7 | 0 | 1397.5 | | | | | | | | | | |
| | | 8 | 0 | 1247.5 | | | | | | | | | | |

5.4.4 Pareti C.A.

Tr.: Riferimento al tronco indicante la quota inferiore e superiore.

Sp.: Spessore misurato in direzione ortogonale al piano medio dell'elemento. [cm]

P.i.: Posizione del punto di inserimento rispetto ad una sezione verticale, vista dal punto iniziale verso il punto finale.

Punto i.: Punto iniziale in pianta.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Punto f.: Punto finale in pianta.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Mat.: Riferimento ad una definizione di materiale cemento armato.

Car.pot.: Riferimento alla definizione di un carico potenziale. Accetta anche il valore "Nessuno".

DeltaT: Riferimento alla definizione di una variazione termica. Accetta anche il valore "Nessuno".

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Sovv.: Aliquota di sovrarresistenza da assicurare in verifica.

S.Z: Indica se l'elemento deve essere verificato considerando il sisma verticale.

P.sup.: Peso per unità di superficie. [daN/cm²]

Aperture: Riferimenti a tutti gli elementi che forano la parete.

| Tr. | Sp. | P.i. | Punto i. | | Punto f. | | Mat. | Car.pot. | P.sup. | Aperture |
|-----|-----|----------|----------|--------|----------|--------|--------|-----------------------------|--------|----------------|
| | | | X | Y | X | Y | | | | |
| T1 | 35 | Sinistra | 0 | 1340 | 692.5 | 1340 | C32/40 | A - pareti denitro | 0.0875 | |
| T1 | 35 | Sinistra | 0 | 665 | 0 | 1397.5 | C32/40 | A - pareti denitro | 0.0875 | |
| T1 | 35 | Sinistra | 692.5 | 1340 | 1367.5 | 1340 | C32/40 | A - pareti denitro | 0.0875 | |
| T1 | 35 | Sinistra | 2402.5 | 270 | 1350 | 270 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 1367.5 | 1340 | 2402.5 | 1340 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 2402.5 | 1340 | 3437.5 | 1340 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 3650.7 | 1090 | 3420 | 1090 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 3437.5 | 1340 | 3650.7 | 1340 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 2420 | 1397.5 | 2420 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | W2 |
| T1 | 35 | Sinistra | 3650.7 | 1392.5 | 3650.7 | 1090 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 3455 | 1397.5 | 3455 | 270 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 1385 | 1397.5 | 1385 | 630 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T1 | 30 | Sinistra | 0 | 345 | 1385 | 345 | C32/40 | | 0.075 | |
| T1 | 35 | Sinistra | 3455 | 270 | 2402.5 | 270 | C32/40 | D - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 710 | 1397.5 | 710 | 630 | C32/40 | B - pareti denitro | 0.0875 | W1 |
| T1 | 35 | Sinistra | 0 | 0 | 0 | 665 | C32/40 | C - pareti loc. compressori | 0.0875 | |
| T1 | 35 | Sinistra | 692.5 | 630 | 0 | 630 | C32/40 | B - pareti denitro | 0.0875 | |
| T1 | 35 | Sinistra | 1385 | 630 | 1385 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T1 | 35 | Sinistra | 1385 | 0 | 0 | 0 | C32/40 | C - pareti loc. compressori | 0.0875 | |
| T1 | 35 | Sinistra | 1385 | 630 | 692.5 | 630 | C32/40 | B - pareti denitro | 0.0875 | |
| T1 | 35 | Sinistra | 1385 | 270 | 1385 | 0 | C32/40 | C - pareti loc. compressori | 0.0875 | |
| T2 | 35 | Sinistra | 3455 | 1397.5 | 3455 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 3455 | 270 | 2402.5 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 2402.5 | 270 | 1350 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 3650.7 | 1392.5 | 3650.7 | 1090 | C32/40 | | 0.0875 | |
| T2 | 35 | Sinistra | 0 | 1340 | 692.5 | 1340 | C32/40 | B - pareti denitro | 0.0875 | |
| T4 | 35 | Sinistra | 1385 | 270 | 1385 | 0 | C32/40 | | 0.0875 | W7 |
| T2 | 35 | Sinistra | 3650.7 | 1090 | 3420 | 1090 | C32/40 | | 0.0875 | |
| T4 | 35 | Sinistra | 0 | 0 | 0 | 665 | C32/40 | | 0.0875 | |
| T2 | 35 | Sinistra | 692.5 | 1340 | 1367.5 | 1340 | C32/40 | B - pareti denitro | 0.0875 | |
| T4 | 35 | Sinistra | 1385 | 0 | 0 | 0 | C32/40 | | 0.0875 | W3, W4, W5, W6 |
| T2 | 35 | Sinistra | 710 | 1397.5 | 710 | 630 | C32/40 | B - pareti denitro | 0.0875 | |
| T2 | 35 | Sinistra | 1385 | 630 | 692.5 | 630 | C32/40 | B - pareti denitro | 0.0875 | |
| T2 | 35 | Sinistra | 1385 | 1397.5 | 1385 | 630 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 1367.5 | 1340 | 2402.5 | 1340 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 1385 | 630 | 1385 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 2420 | 1397.5 | 2420 | 270 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T2 | 35 | Sinistra | 3437.5 | 1340 | 3650.7 | 1340 | C32/40 | | 0.0875 | |
| T2 | 35 | Sinistra | 692.5 | 630 | 0 | 630 | C32/40 | B - pareti denitro | 0.0875 | |
| T2 | 35 | Sinistra | 0 | 665 | 0 | 1397.5 | C32/40 | B - pareti denitro | 0.0875 | |
| T2 | 35 | Sinistra | 2402.5 | 1340 | 3437.5 | 1340 | C32/40 | E - pareti ossidazione | 0.0875 | |
| T3 | 35 | Sinistra | 692.5 | 630 | 0 | 630 | C32/40 | | 0.0875 | |
| T3 | 35 | Sinistra | 1385 | 630 | 1385 | 270 | C32/40 | | 0.0875 | |
| T3 | 35 | Sinistra | 1385 | 630 | 692.5 | 630 | C32/40 | | 0.0875 | |

5.4.5 Carichi superficiali

5.4.5.1 Carichi superficiali di piano

Carico: Riferimento alla definizione di un carico di superficie.

Solaio: Riferimento alla definizione di una sezione di solaio. Accetta anche il valore "Nessuno".

Liv.: Quota di inserimento espressa con notazione breve esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Punti: Punti di definizione in pianta.

Indice: Indice del punto corrente nell'insieme dei punti di definizione dell'elemento.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Estr.: Distanza dalla quota di inserimento misurata in direzione ortogonale al piano della quota e con verso positivo verso l'alto. [cm]

Angolo: Direzione delle nervature che trasmettono il carico. Angolo misurato dal semiasse positivo delle ascisse in verso antiorario. [deg]

Comp.: Descrizione sintetica del comportamento del carico superficiale o, nel caso di comportamento membranale, riferimento alla descrizione analitica della membrana.

Fori: Riferimenti a tutti gli elementi che forano il carico superficiale.

| Carico | Solaio | Liv. | Punti | | Estr. | Angolo | Comp. | Fori | |
|--------------------|---------------------|------|--------|------|-------|--------|-------|--------|---|
| | | | Indice | X | | | | | Y |
| solaio compressori | Pre 30x(5+20+5)/120 | L2 | 1 | 1385 | 0 | 0 | 90 | Rigido | |
| | | | 2 | 1385 | 665 | | | | |
| | | | 3 | 0 | 665 | | | | |
| | | | 4 | 0 | 0 | | | | |
| Copertura | Pre 30x(5+20+5)/120 | L4 | 1 | 1385 | 0 | 0 | 90 | Rigido | |
| | | | 2 | 1385 | 665 | | | | |
| | | | 3 | 0 | 665 | | | | |
| | | | 4 | 0 | 0 | | | | |

6 Dati di modellazione

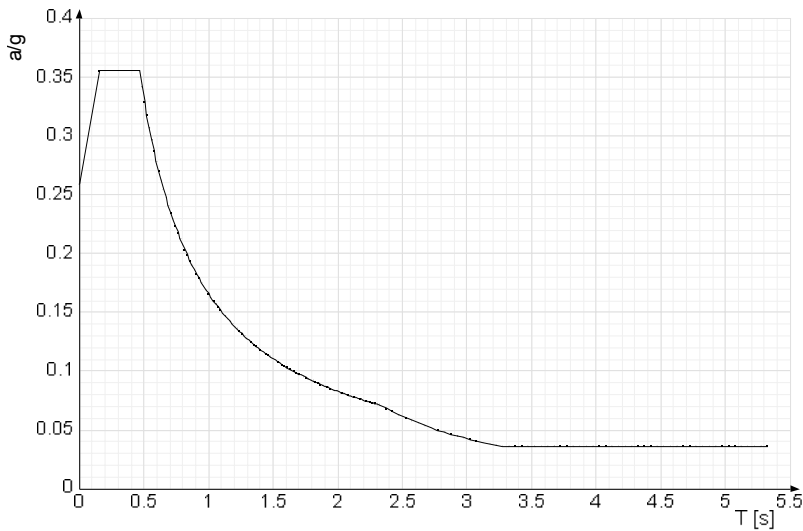
6.1 Accelerazioni spettrali

Ind.vertice: Indice del valore.

T: Periodo. [s]

a/g: Accelerazione normalizzata ottenuta dividendo l'accelerazione per l'accelerazione di gravità. Il valore è adimensionale.

Sisma X SLV



| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 1 | 0 | 0.259 |
| 2 | 0.156 | 0.355 |
| 3 | 0.467 | 0.355 |
| 4 | 0.485 | 0.342 |
| 5 | 0.504 | 0.329 |
| 6 | 0.522 | 0.318 |
| 7 | 0.54 | 0.307 |
| 8 | 0.559 | 0.297 |
| 9 | 0.577 | 0.287 |
| 10 | 0.596 | 0.278 |
| 11 | 0.614 | 0.27 |
| 12 | 0.632 | 0.262 |
| 13 | 0.651 | 0.255 |
| 14 | 0.669 | 0.248 |
| 15 | 0.687 | 0.241 |
| 16 | 0.706 | 0.235 |
| 17 | 0.724 | 0.229 |
| 18 | 0.743 | 0.223 |
| 19 | 0.761 | 0.218 |
| 20 | 0.779 | 0.213 |
| 21 | 0.798 | 0.208 |
| 22 | 0.816 | 0.203 |
| 23 | 0.835 | 0.199 |
| 24 | 0.853 | 0.194 |
| 25 | 0.871 | 0.19 |
| 26 | 0.89 | 0.186 |
| 27 | 0.908 | 0.183 |
| 28 | 0.926 | 0.179 |
| 29 | 0.945 | 0.175 |
| 30 | 0.963 | 0.172 |
| 31 | 0.982 | 0.169 |
| 32 | 1 | 0.166 |
| 33 | 1.018 | 0.163 |
| 34 | 1.037 | 0.16 |
| 35 | 1.055 | 0.157 |
| 36 | 1.073 | 0.154 |
| 37 | 1.092 | 0.152 |
| 38 | 1.111 | 0.149 |
| 39 | 1.129 | 0.147 |
| 40 | 1.147 | 0.145 |
| 41 | 1.165 | 0.142 |
| 42 | 1.184 | 0.14 |
| 43 | 1.202 | 0.138 |
| 44 | 1.22 | 0.136 |
| 45 | 1.239 | 0.134 |
| 46 | 1.257 | 0.132 |
| 47 | 1.276 | 0.13 |
| 48 | 1.294 | 0.128 |
| 49 | 1.312 | 0.126 |
| 50 | 1.331 | 0.125 |
| 51 | 1.349 | 0.123 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 52 | 1.367 | 0.121 |
| 53 | 1.386 | 0.12 |
| 54 | 1.404 | 0.118 |
| 55 | 1.423 | 0.117 |
| 56 | 1.441 | 0.115 |
| 57 | 1.459 | 0.114 |
| 58 | 1.478 | 0.112 |
| 59 | 1.496 | 0.111 |
| 60 | 1.514 | 0.109 |
| 61 | 1.533 | 0.108 |
| 62 | 1.551 | 0.107 |
| 63 | 1.57 | 0.106 |
| 64 | 1.588 | 0.104 |
| 65 | 1.606 | 0.103 |
| 66 | 1.625 | 0.102 |
| 67 | 1.643 | 0.101 |
| 68 | 1.661 | 0.1 |
| 69 | 1.68 | 0.099 |
| 70 | 1.698 | 0.098 |
| 71 | 1.717 | 0.097 |
| 72 | 1.735 | 0.096 |
| 73 | 1.753 | 0.095 |
| 74 | 1.772 | 0.094 |
| 75 | 1.79 | 0.093 |
| 76 | 1.809 | 0.092 |
| 77 | 1.827 | 0.091 |
| 78 | 1.845 | 0.09 |
| 79 | 1.864 | 0.089 |
| 80 | 1.882 | 0.088 |
| 81 | 1.9 | 0.087 |
| 82 | 1.919 | 0.086 |
| 83 | 1.937 | 0.086 |
| 84 | 1.956 | 0.085 |
| 85 | 1.974 | 0.084 |
| 86 | 1.992 | 0.083 |
| 87 | 2.011 | 0.082 |
| 88 | 2.029 | 0.082 |
| 89 | 2.047 | 0.081 |
| 90 | 2.066 | 0.08 |
| 91 | 2.084 | 0.08 |
| 92 | 2.103 | 0.079 |
| 93 | 2.121 | 0.078 |
| 94 | 2.139 | 0.077 |
| 95 | 2.158 | 0.077 |
| 96 | 2.176 | 0.076 |
| 97 | 2.194 | 0.076 |
| 98 | 2.213 | 0.075 |
| 99 | 2.231 | 0.074 |
| 100 | 2.25 | 0.074 |
| 101 | 2.268 | 0.073 |
| 102 | 2.286 | 0.073 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 103 | 2.305 | 0.072 |
| 104 | 2.323 | 0.071 |
| 105 | 2.373 | 0.068 |
| 106 | 2.423 | 0.066 |
| 107 | 2.473 | 0.063 |
| 108 | 2.523 | 0.061 |
| 109 | 2.573 | 0.058 |
| 110 | 2.623 | 0.056 |
| 111 | 2.673 | 0.054 |
| 112 | 2.723 | 0.052 |
| 113 | 2.773 | 0.05 |
| 114 | 2.823 | 0.048 |
| 115 | 2.873 | 0.047 |
| 116 | 2.923 | 0.045 |
| 117 | 2.973 | 0.044 |
| 118 | 3.023 | 0.042 |
| 119 | 3.073 | 0.041 |
| 120 | 3.123 | 0.039 |
| 121 | 3.173 | 0.038 |
| 122 | 3.223 | 0.037 |
| 123 | 3.273 | 0.036 |
| 124 | 3.323 | 0.036 |
| 125 | 3.373 | 0.036 |
| 126 | 3.423 | 0.036 |
| 127 | 3.473 | 0.036 |
| 128 | 3.523 | 0.036 |
| 129 | 3.573 | 0.036 |
| 130 | 3.623 | 0.036 |
| 131 | 3.673 | 0.036 |
| 132 | 3.723 | 0.036 |
| 133 | 3.773 | 0.036 |
| 134 | 3.823 | 0.036 |
| 135 | 3.873 | 0.036 |
| 136 | 3.923 | 0.036 |
| 137 | 3.973 | 0.036 |
| 138 | 4.023 | 0.036 |
| 139 | 4.073 | 0.036 |
| 140 | 4.123 | 0.036 |
| 141 | 4.173 | 0.036 |
| 142 | 4.223 | 0.036 |
| 143 | 4.273 | 0.036 |
| 144 | 4.323 | 0.036 |
| 145 | 4.373 | 0.036 |
| 146 | 4.423 | 0.036 |
| 147 | 4.473 | 0.036 |
| 148 | 4.523 | 0.036 |
| 149 | 4.573 | 0.036 |
| 150 | 4.623 | 0.036 |
| 151 | 4.673 | 0.036 |
| 152 | 4.723 | 0.036 |
| 153 | 4.773 | 0.036 |

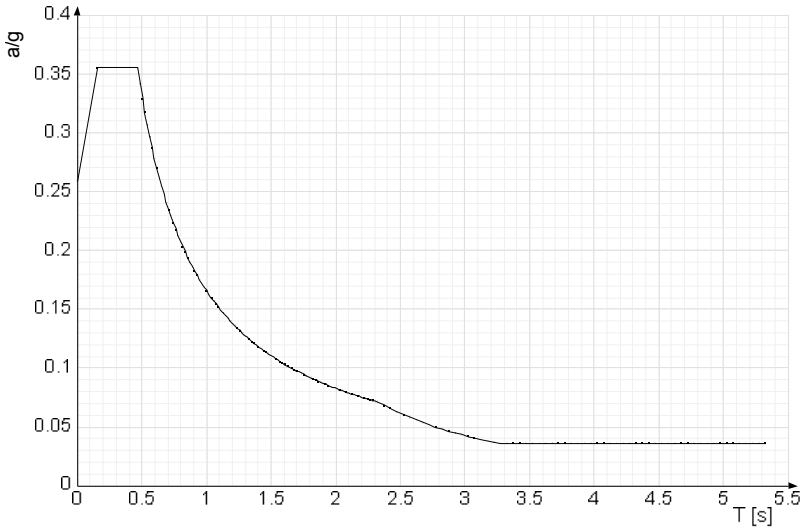
Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
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| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 154 | 4.823 | 0.036 |
| 155 | 4.873 | 0.036 |
| 156 | 4.923 | 0.036 |
| 157 | 4.973 | 0.036 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 158 | 5.023 | 0.036 |
| 159 | 5.073 | 0.036 |
| 160 | 5.123 | 0.036 |
| 161 | 5.173 | 0.036 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 162 | 5.223 | 0.036 |
| 163 | 5.273 | 0.036 |
| 164 | 5.323 | 0.036 |

Sisma Y SLV



| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 1 | 0 | 0.259 |
| 2 | 0.156 | 0.355 |
| 3 | 0.467 | 0.355 |
| 4 | 0.485 | 0.342 |
| 5 | 0.504 | 0.329 |
| 6 | 0.522 | 0.318 |
| 7 | 0.54 | 0.307 |
| 8 | 0.559 | 0.297 |
| 9 | 0.577 | 0.287 |
| 10 | 0.596 | 0.278 |
| 11 | 0.614 | 0.27 |
| 12 | 0.632 | 0.262 |
| 13 | 0.651 | 0.255 |
| 14 | 0.669 | 0.248 |
| 15 | 0.687 | 0.241 |
| 16 | 0.706 | 0.235 |
| 17 | 0.724 | 0.229 |
| 18 | 0.743 | 0.223 |
| 19 | 0.761 | 0.218 |
| 20 | 0.779 | 0.213 |
| 21 | 0.798 | 0.208 |
| 22 | 0.816 | 0.203 |
| 23 | 0.835 | 0.199 |
| 24 | 0.853 | 0.194 |
| 25 | 0.871 | 0.19 |
| 26 | 0.89 | 0.186 |
| 27 | 0.908 | 0.183 |
| 28 | 0.926 | 0.179 |
| 29 | 0.945 | 0.175 |
| 30 | 0.963 | 0.172 |
| 31 | 0.982 | 0.169 |
| 32 | 1 | 0.166 |
| 33 | 1.018 | 0.163 |
| 34 | 1.037 | 0.16 |
| 35 | 1.055 | 0.157 |
| 36 | 1.073 | 0.154 |
| 37 | 1.092 | 0.152 |
| 38 | 1.111 | 0.149 |
| 39 | 1.129 | 0.147 |
| 40 | 1.147 | 0.145 |
| 41 | 1.165 | 0.142 |
| 42 | 1.184 | 0.14 |
| 43 | 1.202 | 0.138 |

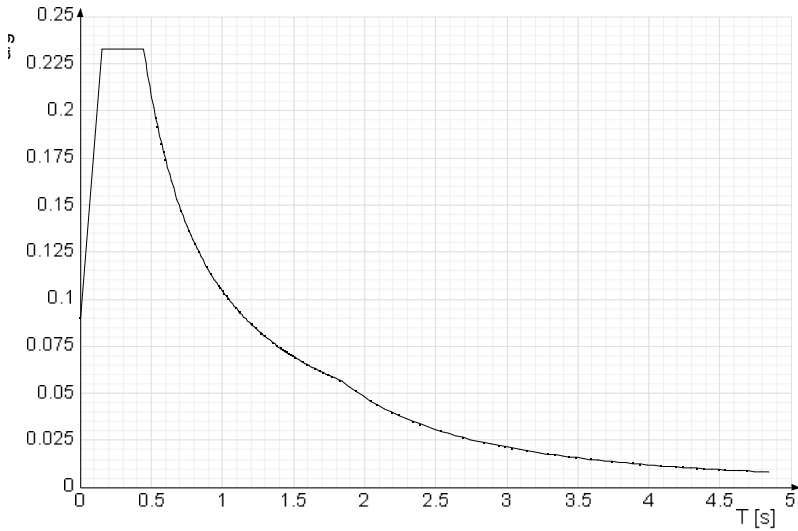
| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 44 | 1.22 | 0.136 |
| 45 | 1.239 | 0.134 |
| 46 | 1.257 | 0.132 |
| 47 | 1.276 | 0.13 |
| 48 | 1.294 | 0.128 |
| 49 | 1.312 | 0.126 |
| 50 | 1.331 | 0.125 |
| 51 | 1.349 | 0.123 |
| 52 | 1.367 | 0.121 |
| 53 | 1.386 | 0.12 |
| 54 | 1.404 | 0.118 |
| 55 | 1.423 | 0.117 |
| 56 | 1.441 | 0.115 |
| 57 | 1.459 | 0.114 |
| 58 | 1.478 | 0.112 |
| 59 | 1.496 | 0.111 |
| 60 | 1.514 | 0.109 |
| 61 | 1.533 | 0.108 |
| 62 | 1.551 | 0.107 |
| 63 | 1.57 | 0.106 |
| 64 | 1.588 | 0.104 |
| 65 | 1.606 | 0.103 |
| 66 | 1.625 | 0.102 |
| 67 | 1.643 | 0.101 |
| 68 | 1.661 | 0.1 |
| 69 | 1.68 | 0.099 |
| 70 | 1.698 | 0.098 |
| 71 | 1.717 | 0.097 |
| 72 | 1.735 | 0.096 |
| 73 | 1.753 | 0.095 |
| 74 | 1.772 | 0.094 |
| 75 | 1.79 | 0.093 |
| 76 | 1.809 | 0.092 |
| 77 | 1.827 | 0.091 |
| 78 | 1.845 | 0.09 |
| 79 | 1.864 | 0.089 |
| 80 | 1.882 | 0.088 |
| 81 | 1.9 | 0.087 |
| 82 | 1.919 | 0.086 |
| 83 | 1.937 | 0.086 |
| 84 | 1.956 | 0.085 |
| 85 | 1.974 | 0.084 |
| 86 | 1.992 | 0.083 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 87 | 2.011 | 0.082 |
| 88 | 2.029 | 0.082 |
| 89 | 2.047 | 0.081 |
| 90 | 2.066 | 0.08 |
| 91 | 2.084 | 0.08 |
| 92 | 2.103 | 0.079 |
| 93 | 2.121 | 0.078 |
| 94 | 2.139 | 0.077 |
| 95 | 2.158 | 0.077 |
| 96 | 2.176 | 0.076 |
| 97 | 2.194 | 0.076 |
| 98 | 2.213 | 0.075 |
| 99 | 2.231 | 0.074 |
| 100 | 2.25 | 0.074 |
| 101 | 2.268 | 0.073 |
| 102 | 2.286 | 0.073 |
| 103 | 2.305 | 0.072 |
| 104 | 2.323 | 0.071 |
| 105 | 2.342 | 0.071 |
| 106 | 2.36 | 0.07 |
| 107 | 2.378 | 0.07 |
| 108 | 2.396 | 0.069 |
| 109 | 2.414 | 0.069 |
| 110 | 2.432 | 0.068 |
| 111 | 2.45 | 0.068 |
| 112 | 2.468 | 0.067 |
| 113 | 2.486 | 0.067 |
| 114 | 2.504 | 0.066 |
| 115 | 2.522 | 0.066 |
| 116 | 2.54 | 0.065 |
| 117 | 2.558 | 0.065 |
| 118 | 2.576 | 0.064 |
| 119 | 2.594 | 0.064 |
| 120 | 2.612 | 0.063 |
| 121 | 2.63 | 0.063 |
| 122 | 2.648 | 0.062 |
| 123 | 2.666 | 0.062 |
| 124 | 2.684 | 0.061 |
| 125 | 2.702 | 0.061 |
| 126 | 2.72 | 0.06 |
| 127 | 2.738 | 0.06 |
| 128 | 2.756 | 0.059 |
| 129 | 2.774 | 0.059 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 130 | 3.623 | 0.036 |
| 131 | 3.673 | 0.036 |
| 132 | 3.723 | 0.036 |
| 133 | 3.773 | 0.036 |
| 134 | 3.823 | 0.036 |
| 135 | 3.873 | 0.036 |
| 136 | 3.923 | 0.036 |
| 137 | 3.973 | 0.036 |
| 138 | 4.023 | 0.036 |
| 139 | 4.073 | 0.036 |
| 140 | 4.123 | 0.036 |
| 141 | 4.173 | 0.036 |
| 142 | 4.223 | 0.036 |
| 143 | 4.273 | 0.036 |
| 144 | 4.323 | 0.036 |
| 145 | 4.373 | 0.036 |
| 146 | 4.423 | 0.036 |
| 147 | 4.473 | 0.036 |
| 148 | 4.523 | 0.036 |
| 149 | 4.573 | 0.036 |
| 150 | 4.623 | 0.036 |
| 151 | 4.673 | 0.036 |
| 152 | 4.723 | 0.036 |
| 153 | 4.773 | 0.036 |
| 154 | 4.823 | 0.036 |
| 155 | 4.873 | 0.036 |
| 156 | 4.923 | 0.036 |
| 157 | 4.973 | 0.036 |
| 158 | 5.023 | 0.036 |
| 159 | 5.073 | 0.036 |
| 160 | 5.123 | 0.036 |
| 161 | 5.173 | 0.036 |
| 162 | 5.223 | 0.036 |
| 163 | 5.273 | 0.036 |
| 164 | 5.323 | 0.036 |

Sisma X SLD

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti



| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 1 | 0 | 0.09 |
| 2 | 0.149 | 0.233 |
| 3 | 0.447 | 0.233 |
| 4 | 0.461 | 0.226 |
| 5 | 0.475 | 0.219 |
| 6 | 0.489 | 0.213 |
| 7 | 0.503 | 0.207 |
| 8 | 0.516 | 0.202 |
| 9 | 0.53 | 0.196 |
| 10 | 0.544 | 0.192 |
| 11 | 0.558 | 0.187 |
| 12 | 0.572 | 0.182 |
| 13 | 0.585 | 0.178 |
| 14 | 0.599 | 0.174 |
| 15 | 0.613 | 0.17 |
| 16 | 0.627 | 0.166 |
| 17 | 0.641 | 0.163 |
| 18 | 0.654 | 0.159 |
| 19 | 0.668 | 0.156 |
| 20 | 0.682 | 0.153 |
| 21 | 0.696 | 0.15 |
| 22 | 0.71 | 0.147 |
| 23 | 0.723 | 0.144 |
| 24 | 0.737 | 0.141 |
| 25 | 0.751 | 0.139 |
| 26 | 0.765 | 0.136 |
| 27 | 0.778 | 0.134 |
| 28 | 0.792 | 0.132 |
| 29 | 0.806 | 0.129 |
| 30 | 0.82 | 0.127 |
| 31 | 0.834 | 0.125 |
| 32 | 0.847 | 0.123 |
| 33 | 0.861 | 0.121 |
| 34 | 0.875 | 0.119 |
| 35 | 0.889 | 0.117 |
| 36 | 0.903 | 0.115 |
| 37 | 0.916 | 0.114 |
| 38 | 0.93 | 0.112 |
| 39 | 0.944 | 0.11 |
| 40 | 0.958 | 0.109 |
| 41 | 0.972 | 0.107 |
| 42 | 0.985 | 0.106 |
| 43 | 0.999 | 0.104 |

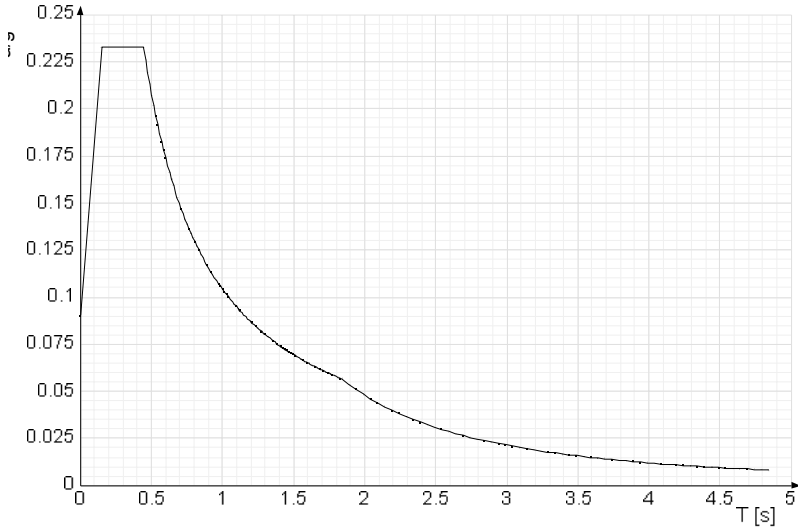
| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 44 | 1.013 | 0.103 |
| 45 | 1.027 | 0.101 |
| 46 | 1.041 | 0.1 |
| 47 | 1.054 | 0.099 |
| 48 | 1.068 | 0.098 |
| 49 | 1.082 | 0.096 |
| 50 | 1.096 | 0.095 |
| 51 | 1.109 | 0.094 |
| 52 | 1.123 | 0.093 |
| 53 | 1.137 | 0.092 |
| 54 | 1.151 | 0.091 |
| 55 | 1.165 | 0.089 |
| 56 | 1.178 | 0.088 |
| 57 | 1.192 | 0.087 |
| 58 | 1.206 | 0.086 |
| 59 | 1.22 | 0.085 |
| 60 | 1.234 | 0.084 |
| 61 | 1.247 | 0.084 |
| 62 | 1.261 | 0.083 |
| 63 | 1.275 | 0.082 |
| 64 | 1.289 | 0.081 |
| 65 | 1.303 | 0.08 |
| 66 | 1.316 | 0.079 |
| 67 | 1.33 | 0.078 |
| 68 | 1.344 | 0.078 |
| 69 | 1.358 | 0.077 |
| 70 | 1.371 | 0.076 |
| 71 | 1.385 | 0.075 |
| 72 | 1.399 | 0.074 |
| 73 | 1.413 | 0.074 |
| 74 | 1.427 | 0.073 |
| 75 | 1.44 | 0.072 |
| 76 | 1.454 | 0.072 |
| 77 | 1.468 | 0.071 |
| 78 | 1.482 | 0.07 |
| 79 | 1.496 | 0.07 |
| 80 | 1.509 | 0.069 |
| 81 | 1.523 | 0.068 |
| 82 | 1.537 | 0.068 |
| 83 | 1.551 | 0.067 |
| 84 | 1.565 | 0.067 |
| 85 | 1.578 | 0.066 |
| 86 | 1.592 | 0.065 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 87 | 1.606 | 0.065 |
| 88 | 1.62 | 0.064 |
| 89 | 1.634 | 0.064 |
| 90 | 1.647 | 0.063 |
| 91 | 1.661 | 0.063 |
| 92 | 1.675 | 0.062 |
| 93 | 1.689 | 0.062 |
| 94 | 1.702 | 0.061 |
| 95 | 1.716 | 0.061 |
| 96 | 1.73 | 0.06 |
| 97 | 1.744 | 0.06 |
| 98 | 1.758 | 0.059 |
| 99 | 1.771 | 0.059 |
| 100 | 1.785 | 0.058 |
| 101 | 1.799 | 0.058 |
| 102 | 1.813 | 0.057 |
| 103 | 1.827 | 0.057 |
| 104 | 1.84 | 0.057 |
| 105 | 1.89 | 0.054 |
| 106 | 1.94 | 0.051 |
| 107 | 1.99 | 0.048 |
| 108 | 2.04 | 0.046 |
| 109 | 2.09 | 0.044 |
| 110 | 2.14 | 0.042 |
| 111 | 2.19 | 0.04 |
| 112 | 2.24 | 0.038 |
| 113 | 2.29 | 0.037 |
| 114 | 2.34 | 0.035 |
| 115 | 2.39 | 0.034 |
| 116 | 2.44 | 0.032 |
| 117 | 2.49 | 0.031 |
| 118 | 2.54 | 0.03 |
| 119 | 2.59 | 0.029 |
| 120 | 2.64 | 0.028 |
| 121 | 2.69 | 0.026 |
| 122 | 2.74 | 0.026 |
| 123 | 2.79 | 0.025 |
| 124 | 2.84 | 0.024 |
| 125 | 2.89 | 0.023 |
| 126 | 2.94 | 0.022 |
| 127 | 2.99 | 0.021 |
| 128 | 3.04 | 0.021 |
| 129 | 3.09 | 0.02 |

| Ind.vertice | T | a/g |
|-------------|------|-------|
| 130 | 3.14 | 0.019 |
| 131 | 3.19 | 0.019 |
| 132 | 3.24 | 0.018 |
| 133 | 3.29 | 0.018 |
| 134 | 3.34 | 0.017 |
| 135 | 3.39 | 0.017 |
| 136 | 3.44 | 0.016 |
| 137 | 3.49 | 0.016 |
| 138 | 3.54 | 0.015 |
| 139 | 3.59 | 0.015 |
| 140 | 3.64 | 0.014 |
| 141 | 3.69 | 0.014 |
| 142 | 3.74 | 0.014 |
| 143 | 3.79 | 0.013 |
| 144 | 3.84 | 0.013 |
| 145 | 3.89 | 0.013 |
| 146 | 3.94 | 0.012 |
| 147 | 3.99 | 0.012 |
| 148 | 4.04 | 0.012 |
| 149 | 4.09 | 0.011 |
| 150 | 4.14 | 0.011 |
| 151 | 4.19 | 0.011 |
| 152 | 4.24 | 0.011 |
| 153 | 4.29 | 0.01 |
| 154 | 4.34 | 0.01 |
| 155 | 4.39 | 0.01 |
| 156 | 4.44 | 0.01 |
| 157 | 4.49 | 0.01 |
| 158 | 4.54 | 0.009 |
| 159 | 4.59 | 0.009 |
| 160 | 4.64 | 0.009 |
| 161 | 4.69 | 0.009 |
| 162 | 4.74 | 0.009 |
| 163 | 4.79 | 0.008 |
| 164 | 4.84 | 0.008 |

Sisma Y SLD

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**



| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 1 | 0 | 0.09 |
| 2 | 0.149 | 0.233 |
| 3 | 0.447 | 0.233 |
| 4 | 0.461 | 0.226 |
| 5 | 0.475 | 0.219 |
| 6 | 0.489 | 0.213 |
| 7 | 0.503 | 0.207 |
| 8 | 0.516 | 0.202 |
| 9 | 0.53 | 0.196 |
| 10 | 0.544 | 0.192 |
| 11 | 0.558 | 0.187 |
| 12 | 0.572 | 0.182 |
| 13 | 0.585 | 0.178 |
| 14 | 0.599 | 0.174 |
| 15 | 0.613 | 0.17 |
| 16 | 0.627 | 0.166 |
| 17 | 0.641 | 0.163 |
| 18 | 0.654 | 0.159 |
| 19 | 0.668 | 0.156 |
| 20 | 0.682 | 0.153 |
| 21 | 0.696 | 0.15 |
| 22 | 0.71 | 0.147 |
| 23 | 0.723 | 0.144 |
| 24 | 0.737 | 0.141 |
| 25 | 0.751 | 0.139 |
| 26 | 0.765 | 0.136 |
| 27 | 0.778 | 0.134 |
| 28 | 0.792 | 0.132 |
| 29 | 0.806 | 0.129 |
| 30 | 0.82 | 0.127 |
| 31 | 0.834 | 0.125 |
| 32 | 0.847 | 0.123 |
| 33 | 0.861 | 0.121 |
| 34 | 0.875 | 0.119 |
| 35 | 0.889 | 0.117 |
| 36 | 0.903 | 0.115 |
| 37 | 0.916 | 0.114 |
| 38 | 0.93 | 0.112 |
| 39 | 0.944 | 0.11 |
| 40 | 0.958 | 0.109 |
| 41 | 0.972 | 0.107 |
| 42 | 0.985 | 0.106 |
| 43 | 0.999 | 0.104 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 44 | 1.013 | 0.103 |
| 45 | 1.027 | 0.101 |
| 46 | 1.041 | 0.1 |
| 47 | 1.054 | 0.099 |
| 48 | 1.068 | 0.098 |
| 49 | 1.082 | 0.096 |
| 50 | 1.096 | 0.095 |
| 51 | 1.109 | 0.094 |
| 52 | 1.123 | 0.093 |
| 53 | 1.137 | 0.092 |
| 54 | 1.151 | 0.091 |
| 55 | 1.165 | 0.089 |
| 56 | 1.178 | 0.088 |
| 57 | 1.192 | 0.087 |
| 58 | 1.206 | 0.086 |
| 59 | 1.22 | 0.085 |
| 60 | 1.234 | 0.084 |
| 61 | 1.247 | 0.084 |
| 62 | 1.261 | 0.083 |
| 63 | 1.275 | 0.082 |
| 64 | 1.289 | 0.081 |
| 65 | 1.303 | 0.08 |
| 66 | 1.316 | 0.079 |
| 67 | 1.33 | 0.078 |
| 68 | 1.344 | 0.078 |
| 69 | 1.358 | 0.077 |
| 70 | 1.371 | 0.076 |
| 71 | 1.385 | 0.075 |
| 72 | 1.399 | 0.074 |
| 73 | 1.413 | 0.074 |
| 74 | 1.427 | 0.073 |
| 75 | 1.44 | 0.072 |
| 76 | 1.454 | 0.072 |
| 77 | 1.468 | 0.071 |
| 78 | 1.482 | 0.07 |
| 79 | 1.496 | 0.07 |
| 80 | 1.509 | 0.069 |
| 81 | 1.523 | 0.068 |
| 82 | 1.537 | 0.068 |
| 83 | 1.551 | 0.067 |
| 84 | 1.565 | 0.067 |
| 85 | 1.578 | 0.066 |
| 86 | 1.592 | 0.065 |

| Ind.vertice | T | a/g |
|-------------|-------|-------|
| 87 | 1.606 | 0.065 |
| 88 | 1.62 | 0.064 |
| 89 | 1.634 | 0.064 |
| 90 | 1.647 | 0.063 |
| 91 | 1.661 | 0.063 |
| 92 | 1.675 | 0.062 |
| 93 | 1.689 | 0.062 |
| 94 | 1.702 | 0.061 |
| 95 | 1.716 | 0.061 |
| 96 | 1.73 | 0.06 |
| 97 | 1.744 | 0.06 |
| 98 | 1.758 | 0.059 |
| 99 | 1.771 | 0.059 |
| 100 | 1.785 | 0.058 |
| 101 | 1.799 | 0.058 |
| 102 | 1.813 | 0.057 |
| 103 | 1.827 | 0.057 |
| 104 | 1.84 | 0.057 |
| 105 | 1.89 | 0.054 |
| 106 | 1.94 | 0.051 |
| 107 | 1.99 | 0.048 |
| 108 | 2.04 | 0.046 |
| 109 | 2.09 | 0.044 |
| 110 | 2.14 | 0.042 |
| 111 | 2.19 | 0.04 |
| 112 | 2.24 | 0.038 |
| 113 | 2.29 | 0.037 |
| 114 | 2.34 | 0.035 |
| 115 | 2.39 | 0.034 |
| 116 | 2.44 | 0.032 |
| 117 | 2.49 | 0.031 |
| 118 | 2.54 | 0.03 |
| 119 | 2.59 | 0.029 |
| 120 | 2.64 | 0.028 |
| 121 | 2.69 | 0.026 |
| 122 | 2.74 | 0.026 |
| 123 | 2.79 | 0.025 |
| 124 | 2.84 | 0.024 |
| 125 | 2.89 | 0.023 |
| 126 | 2.94 | 0.022 |
| 127 | 2.99 | 0.021 |
| 128 | 3.04 | 0.021 |
| 129 | 3.09 | 0.02 |

| Ind.vertice | T | a/g |
|-------------|------|-------|
| 130 | 3.14 | 0.019 |
| 131 | 3.19 | 0.019 |
| 132 | 3.24 | 0.018 |
| 133 | 3.29 | 0.018 |
| 134 | 3.34 | 0.017 |
| 135 | 3.39 | 0.017 |
| 136 | 3.44 | 0.016 |
| 137 | 3.49 | 0.016 |
| 138 | 3.54 | 0.015 |
| 139 | 3.59 | 0.015 |
| 140 | 3.64 | 0.014 |
| 141 | 3.69 | 0.014 |
| 142 | 3.74 | 0.014 |
| 143 | 3.79 | 0.013 |
| 144 | 3.84 | 0.013 |
| 145 | 3.89 | 0.013 |
| 146 | 3.94 | 0.012 |
| 147 | 3.99 | 0.012 |
| 148 | 4.04 | 0.012 |
| 149 | 4.09 | 0.011 |
| 150 | 4.14 | 0.011 |
| 151 | 4.19 | 0.011 |
| 152 | 4.24 | 0.011 |
| 153 | 4.29 | 0.01 |
| 154 | 4.34 | 0.01 |
| 155 | 4.39 | 0.01 |
| 156 | 4.44 | 0.01 |
| 157 | 4.49 | 0.01 |
| 158 | 4.54 | 0.009 |
| 159 | 4.59 | 0.009 |
| 160 | 4.64 | 0.009 |
| 161 | 4.69 | 0.009 |
| 162 | 4.74 | 0.009 |
| 163 | 4.79 | 0.008 |
| 164 | 4.84 | 0.008 |

7 Risultati numerici

7.1 Spostamenti di interpiano

Nodo inferiore: Nodo inferiore.

I.: Numero dell'elemento nell'insieme che lo contiene.

Pos.: Coordinate del nodo.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Z: Coordinata Z. [cm]

Nodo superiore: Nodo superiore.

I.: Numero dell'elemento nell'insieme che lo contiene.

Pos.: Coordinate del nodo.

Z: Coordinata Z. [cm]

Spost. rel.: Spostamento relativo. Il valore è adimensionale.

Comb.: Combinazione.

n.b.: Nome breve o compatto della combinazione di carico.

Spostamento inferiore: Spostamento in pianta del nodo inferiore.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

Spostamento superiore: Spostamento in pianta del nodo superiore.

X: Coordinata X. [cm]

Y: Coordinata Y. [cm]

S.V.: Si intende non verificato qualora lo spostamento relativo sia superiore al valore limite espresso nelle preferenze di analisi.

limite SLD = 0,005

| I. | Nodo inferiore | | | Nodo superiore | | Spost. rel. | Comb. n.b. | Spostamento inferiore | | Spostamento superiore | | S.V. | |
|-----|----------------|------|------|----------------|------|-------------|------------|-----------------------|---|-----------------------|--------|--------|----|
| | Pos. | X | Y | I. | Pos. | | | Z | X | Y | X | | Y |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000064 | SLD 1 | 0 | 0 | -0.001 | -0.011 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000063 | SLD 2 | 0 | 0 | -0.001 | -0.011 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000053 | SLD 3 | 0 | 0 | -0.002 | -0.009 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000052 | SLD 4 | 0 | 0 | -0.002 | -0.009 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000075 | SLD 5 | 0 | 0 | -0.002 | -0.013 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000004 | SLD 7 | 0 | 0 | -0.002 | -0.006 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000039 | SLD 8 | 0 | 0 | -0.002 | -0.006 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000078 | SLD 9 | 0 | 0 | -0.001 | -0.013 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000077 | SLD 10 | 0 | 0 | -0.001 | -0.013 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000042 | SLD 11 | 0 | 0 | -0.001 | -0.007 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000041 | SLD 12 | 0 | 0 | -0.001 | -0.007 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000069 | SLD 13 | 0 | 0 | 0 | -0.012 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000069 | SLD 14 | 0 | 0 | 0 | -0.012 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000058 | SLD 15 | 0 | 0 | 0 | -0.01 | si |
| 35 | 17.5 | 17.5 | 17.5 | -20 | 3111 | 150 | 0.000058 | SLD 16 | 0 | 0 | 0 | -0.01 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.00007 | SLD 1 | 0 | 0 | -0.001 | -0.012 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000071 | SLD 2 | 0 | 0 | -0.001 | -0.012 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.00006 | SLD 3 | 0 | 0 | -0.002 | -0.01 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.00006 | SLD 4 | 0 | 0 | -0.002 | -0.01 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000074 | SLD 5 | 0 | 0 | -0.002 | -0.012 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.00004 | SLD 7 | 0 | 0 | -0.002 | -0.006 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000041 | SLD 8 | 0 | 0 | -0.002 | -0.007 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000079 | SLD 9 | 0 | 0 | -0.001 | -0.013 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.00008 | SLD 10 | 0 | 0 | -0.001 | -0.014 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000045 | SLD 11 | 0 | 0 | -0.001 | -0.008 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000046 | SLD 12 | 0 | 0 | -0.001 | -0.008 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000075 | SLD 13 | 0 | 0 | 0 | -0.013 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000075 | SLD 14 | 0 | 0 | 0 | -0.013 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000064 | SLD 15 | 0 | 0 | 0 | -0.011 | si |
| 62 | 1367.5 | 17.5 | 17.5 | -20 | 3138 | 150 | 0.000065 | SLD 16 | 0 | 0 | 0 | -0.011 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.00007 | SLD 1 | 0 | 0 | -0.001 | -0.012 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.00007 | SLD 2 | 0 | 0 | -0.001 | -0.012 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.00006 | SLD 3 | 0 | 0 | -0.001 | -0.01 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.00006 | SLD 4 | 0 | 0 | -0.001 | -0.01 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000074 | SLD 5 | 0 | 0 | -0.002 | -0.012 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000041 | SLD 7 | 0 | 0 | -0.002 | -0.006 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000041 | SLD 8 | 0 | 0 | -0.002 | -0.007 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000079 | SLD 9 | 0 | 0 | -0.001 | -0.013 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.00008 | SLD 10 | 0 | 0 | -0.001 | -0.014 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000045 | SLD 11 | 0 | 0 | -0.001 | -0.008 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000045 | SLD 12 | 0 | 0 | -0.001 | -0.008 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000075 | SLD 13 | 0 | 0 | 0.001 | -0.013 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000075 | SLD 14 | 0 | 0 | 0.001 | -0.013 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000064 | SLD 15 | 0 | 0 | 0.001 | -0.011 | si |
| 254 | 1367.5 | 270 | 270 | -20 | 3148 | 150 | 0.000065 | SLD 16 | 0 | 0 | 0.001 | -0.011 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000063 | SLD 1 | 0 | 0 | -0.001 | -0.011 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000063 | SLD 2 | 0 | 0 | -0.001 | -0.011 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000053 | SLD 3 | 0 | 0 | -0.001 | -0.009 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000052 | SLD 4 | 0 | 0 | -0.001 | -0.009 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000075 | SLD 5 | 0 | 0 | -0.002 | -0.013 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.00004 | SLD 7 | 0 | 0 | -0.002 | -0.006 | si |
| 375 | 17.5 | 330 | 330 | -20 | 3194 | 150 | 0.000039 | SLD 8 | 0 | 0 | -0.002 | -0.006 | si |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| I. | Nodo inferiore | | | Nodo superiore | | Spost. rel. | Comb. n.b. | Spostamento inferiore | | Spostamento superiore | | S.V. |
|------|----------------|--------|-----|----------------|--------|-------------|------------|-----------------------|---|-----------------------|--------|------|
| | X | Pos. Y | Z | I. | Pos. Z | | | X | Y | X | Y | |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000078 | SLD 9 | 0 | 0 | -0.001 | -0.013 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000077 | SLD 10 | 0 | 0 | 0 | -0.013 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000042 | SLD 11 | 0 | 0 | -0.001 | -0.007 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000004 | SLD 12 | 0 | 0 | -0.001 | -0.007 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000007 | SLD 13 | 0 | 0 | 0.001 | -0.012 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000069 | SLD 14 | 0 | 0 | 0.001 | -0.012 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000058 | SLD 15 | 0 | 0 | 0.001 | -0.01 | si |
| 375 | 17.5 | 330 | -20 | 3194 | 150 | 0.000058 | SLD 16 | 0 | 0 | 0.001 | -0.01 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000007 | SLD 1 | 0 | 0 | -0.001 | -0.012 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000007 | SLD 2 | 0 | 0 | -0.001 | -0.012 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000006 | SLD 3 | 0 | 0 | -0.001 | -0.01 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000006 | SLD 4 | 0 | 0 | -0.001 | -0.01 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000074 | SLD 5 | 0 | 0 | -0.002 | -0.012 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000041 | SLD 7 | 0 | 0 | -0.002 | -0.006 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000041 | SLD 8 | 0 | 0 | -0.002 | -0.007 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000079 | SLD 9 | 0 | 0 | -0.001 | -0.013 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000008 | SLD 10 | 0 | 0 | 0 | -0.014 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000045 | SLD 11 | 0 | 0 | -0.001 | -0.008 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000045 | SLD 12 | 0 | 0 | -0.001 | -0.008 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000075 | SLD 13 | 0 | 0 | 0.001 | -0.013 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000075 | SLD 14 | 0 | 0 | 0.001 | -0.013 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000064 | SLD 15 | 0 | 0 | 0.001 | -0.011 | si |
| 402 | 1367.5 | 330 | -20 | 3221 | 150 | 0.000065 | SLD 16 | 0 | 0 | 0.001 | -0.011 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000007 | SLD 1 | 0 | 0 | -0.001 | -0.012 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000007 | SLD 2 | 0 | 0 | -0.001 | -0.012 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000006 | SLD 3 | 0 | 0 | -0.001 | -0.01 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000006 | SLD 4 | 0 | 0 | -0.001 | -0.01 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000074 | SLD 5 | 0 | 0 | -0.002 | -0.012 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000041 | SLD 7 | 0 | 0 | -0.003 | -0.006 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000041 | SLD 8 | 0 | 0 | -0.002 | -0.007 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000079 | SLD 9 | 0 | 0 | 0 | -0.013 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000008 | SLD 10 | 0 | 0 | 0 | -0.014 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000045 | SLD 11 | 0 | 0 | -0.001 | -0.008 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000045 | SLD 12 | 0 | 0 | -0.001 | -0.008 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000075 | SLD 13 | 0 | 0 | 0.001 | -0.013 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000075 | SLD 14 | 0 | 0 | 0.001 | -0.013 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000064 | SLD 15 | 0 | 0 | 0.001 | -0.011 | si |
| 893 | 1367.5 | 630 | -20 | 3247 | 150 | 0.000065 | SLD 16 | 0 | 0 | 0.001 | -0.011 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000067 | SLD 1 | 0 | 0 | -0.001 | -0.011 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000067 | SLD 2 | 0 | 0 | -0.001 | -0.011 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000056 | SLD 3 | 0 | 0 | -0.001 | -0.01 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000056 | SLD 4 | 0 | 0 | -0.001 | -0.009 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000074 | SLD 5 | 0 | 0 | -0.002 | -0.013 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000041 | SLD 7 | 0 | 0 | -0.003 | -0.006 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000004 | SLD 8 | 0 | 0 | -0.002 | -0.006 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000079 | SLD 9 | 0 | 0 | 0 | -0.013 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000078 | SLD 10 | 0 | 0 | 0 | -0.013 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000043 | SLD 11 | 0 | 0 | -0.001 | -0.007 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000043 | SLD 12 | 0 | 0 | -0.001 | -0.007 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000072 | SLD 13 | 0 | 0 | 0.001 | -0.012 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000072 | SLD 14 | 0 | 0 | 0.001 | -0.012 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000061 | SLD 15 | 0 | 0 | 0.001 | -0.01 | si |
| 947 | 692.5 | 647.5 | -20 | 3262 | 150 | 0.000061 | SLD 16 | 0 | 0 | 0.001 | -0.01 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000063 | SLD 1 | 0 | 0 | -0.001 | -0.011 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000063 | SLD 2 | 0 | 0 | -0.001 | -0.011 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000052 | SLD 3 | 0 | 0 | -0.001 | -0.009 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000052 | SLD 4 | 0 | 0 | -0.001 | -0.009 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000075 | SLD 5 | 0 | 0 | -0.002 | -0.013 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000074 | SLD 6 | 0 | 0 | -0.002 | -0.012 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000004 | SLD 7 | 0 | 0 | -0.003 | -0.006 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000039 | SLD 8 | 0 | 0 | -0.002 | -0.006 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000078 | SLD 9 | 0 | 0 | 0 | -0.013 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000077 | SLD 10 | 0 | 0 | 0 | -0.013 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000041 | SLD 11 | 0 | 0 | -0.001 | -0.007 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.00004 | SLD 12 | 0 | 0 | -0.001 | -0.007 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000007 | SLD 13 | 0 | 0 | 0.001 | -0.012 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000069 | SLD 14 | 0 | 0 | 0.001 | -0.012 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000059 | SLD 15 | 0 | 0 | 0.001 | -0.01 | si |
| 983 | 17.5 | 665 | -20 | 3278 | 150 | 0.000058 | SLD 16 | 0 | 0 | 0.001 | -0.01 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000046 | SLD 1 | 0 | 0 | -0.001 | -0.022 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000046 | SLD 2 | 0 | 0 | -0.001 | -0.021 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000036 | SLD 3 | 0 | 0 | -0.002 | -0.017 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000035 | SLD 4 | 0 | 0 | -0.002 | -0.016 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000061 | SLD 5 | 0 | 0 | -0.001 | -0.028 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000006 | SLD 6 | 0 | 0 | -0.001 | -0.028 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000027 | SLD 7 | 0 | 0 | -0.004 | -0.012 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000026 | SLD 8 | 0 | 0 | -0.004 | -0.011 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000057 | SLD 9 | 0 | 0 | 0.001 | -0.026 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000056 | SLD 10 | 0 | 0 | 0.001 | -0.026 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000021 | SLD 11 | 0 | 0 | -0.002 | -0.01 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000021 | SLD 12 | 0 | 0 | -0.002 | -0.009 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000039 | SLD 13 | 0 | 0 | 0.002 | -0.018 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000039 | SLD 14 | 0 | 0 | 0.002 | -0.018 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000028 | SLD 15 | 0 | 0 | 0.001 | -0.013 | si |
| 2138 | 17.5 | 1322.5 | -20 | 5638 | 445 | 0.000028 | SLD 16 | 0 | 0 | 0.001 | -0.013 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000025 | SLD 1 | 0 | 0 | 0.003 | -0.011 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000025 | SLD 2 | 0 | 0 | 0.003 | -0.011 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000014 | SLD 3 | 0 | 0 | 0.002 | -0.006 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000014 | SLD 4 | 0 | 0 | -0.002 | -0.006 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000044 | SLD 5 | 0 | 0 | 0.002 | -0.02 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000044 | SLD 6 | 0 | 0 | 0.002 | -0.02 | si |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| Nodo inferiore | | | | Nodo superiore | | Spot. rel. | Comb. n.b. | Spostamento inferiore | | Spostamento superiore | | S.V. |
|----------------|--------|--------|-----|----------------|------|------------|---------------|-----------------------|---|-----------------------|--------|------|
| I. | Pos. | | | I. | Pos. | | | X | Y | X | Y | |
| | X | Y | Z | | Z | | | | | | | |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000009 | SLD 7 | 0 | 0 | -0.001 | -0.004 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000009 | SLD 8 | 0 | 0 | -0.001 | -0.004 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000043 | SLD 9 | 0 | 0 | 0.004 | -0.02 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000043 | SLD 10 | 0 | 0 | 0.004 | -0.02 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000008 | SLD 11 | 0 | 0 | 0.001 | -0.003 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000008 | SLD 12 | 0 | 0 | 0.001 | -0.003 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000031 | SLD 13 | 0 | 0 | 0.006 | -0.013 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000031 | SLD 14 | 0 | 0 | 0.006 | -0.013 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000021 | SLD 15 | 0 | 0 | 0.005 | -0.008 | si |
| 2152 | 692.5 | 1322.5 | -20 | 5662 | 445 | 0.000021 | SLD 16 | 0 | 0 | 0.005 | -0.008 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000018 | SLD 1 | 0 | 0 | 0.008 | -0.001 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000018 | SLD 2 | 0 | 0 | 0.008 | -0.001 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000018 | SLD 3 | 0 | 0 | 0.007 | 0.004 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000018 | SLD 4 | 0 | 0 | 0.007 | 0.004 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000031 | SLD 5 | 0 | 0 | 0.005 | -0.013 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000032 | SLD 6 | 0 | 0 | 0.005 | -0.014 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000007 | SLD 7 | 0 | 0 | 0.003 | 0.002 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000007 | SLD 8 | 0 | 0 | 0.003 | 0.001 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000003 | SLD 9 | 0 | 0 | 0.008 | -0.011 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000003 | SLD 10 | 0 | 0 | 0.008 | -0.012 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000014 | SLD 11 | 0 | 0 | 0.005 | 0.004 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000013 | SLD 12 | 0 | 0 | 0.005 | 0.003 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000023 | SLD 13 | 0 | 0 | 0.01 | -0.004 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000023 | SLD 14 | 0 | 0 | 0.01 | -0.004 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000002 | SLD 15 | 0 | 0 | 0.009 | 0.001 | si |
| 2166 | 1367.5 | 1322.5 | -20 | 5676 | 445 | 0.000002 | SLD 16 | 0 | 0 | 0.009 | 0.001 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000058 | SLD 1 | 0 | 0 | 0.018 | 0.02 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000058 | SLD 2 | 0 | 0 | 0.018 | 0.02 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000063 | SLD 3 | 0 | 0 | 0.017 | 0.024 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000063 | SLD 4 | 0 | 0 | 0.017 | 0.024 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000003 | SLD 5 | 0 | 0 | 0.013 | 0.004 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000003 | SLD 6 | 0 | 0 | 0.013 | 0.004 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000043 | SLD 7 | 0 | 0 | 0.01 | 0.017 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000043 | SLD 8 | 0 | 0 | 0.01 | 0.017 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.00004 | SLD 9 | 0 | 0 | 0.017 | 0.008 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.00004 | SLD 10 | 0 | 0 | 0.017 | 0.008 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000054 | SLD 11 | 0 | 0 | 0.014 | 0.021 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000054 | SLD 12 | 0 | 0 | 0.014 | 0.021 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000056 | SLD 13 | 0 | 0 | 0.02 | 0.017 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000056 | SLD 14 | 0 | 0 | 0.02 | 0.017 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000061 | SLD 15 | 0 | 0 | 0.019 | 0.021 | si |
| 2187 | 2402.5 | 1322.5 | -20 | 5697 | 445 | 0.000061 | SLD 16 | 0 | 0 | 0.019 | 0.021 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000063 | SLD 1 | 0 | 0 | 0.029 | 0.003 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000063 | SLD 2 | 0 | 0 | 0.029 | 0.003 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000062 | SLD 3 | 0 | 0 | 0.028 | 0.006 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000062 | SLD 4 | 0 | 0 | 0.028 | 0.006 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000047 | SLD 5 | 0 | 0 | 0.022 | 0.001 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000047 | SLD 6 | 0 | 0 | 0.022 | 0.001 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000049 | SLD 7 | 0 | 0 | 0.018 | 0.014 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000049 | SLD 8 | 0 | 0 | 0.018 | 0.014 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000059 | SLD 9 | 0 | 0 | 0.027 | 0.003 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000059 | SLD 10 | 0 | 0 | 0.027 | 0.003 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000006 | SLD 11 | 0 | 0 | 0.023 | 0.015 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000006 | SLD 12 | 0 | 0 | 0.024 | 0.015 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000072 | SLD 13 | 0 | 0 | 0.032 | 0.009 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000072 | SLD 14 | 0 | 0 | 0.032 | 0.009 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000072 | SLD 15 | 0 | 0 | 0.031 | 0.013 | si |
| 2208 | 3437.5 | 1322.5 | -20 | 5734 | 445 | 0.000072 | SLD 16 | 0 | 0 | 0.031 | 0.013 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000047 | SLD 1 | 0 | 0 | -0.003 | -0.022 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000047 | SLD 2 | 0 | 0 | -0.003 | -0.021 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000037 | SLD 3 | 0 | 0 | -0.005 | -0.017 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000037 | SLD 4 | 0 | 0 | -0.005 | -0.016 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000061 | SLD 5 | 0 | 0 | -0.001 | -0.029 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000061 | SLD 6 | 0 | 0 | -0.002 | -0.028 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000029 | SLD 7 | 0 | 0 | -0.006 | -0.012 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000028 | SLD 8 | 0 | 0 | -0.006 | -0.012 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000057 | SLD 9 | 0 | 0 | 0 | -0.027 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000056 | SLD 10 | 0 | 0 | 0 | -0.026 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000024 | SLD 11 | 0 | 0 | -0.005 | -0.01 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000023 | SLD 12 | 0 | 0 | -0.005 | -0.01 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000039 | SLD 13 | 0 | 0 | -0.001 | -0.018 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000039 | SLD 14 | 0 | 0 | -0.001 | -0.018 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000029 | SLD 15 | 0 | 0 | -0.002 | -0.013 | si |
| 2363 | 17.5 | 1397.5 | -20 | 5816 | 445 | 0.000028 | SLD 16 | 0 | 0 | -0.002 | -0.013 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000024 | SLD 1 | 0 | 0 | 0.001 | -0.011 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000024 | SLD 2 | 0 | 0 | 0.001 | -0.011 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000013 | SLD 3 | 0 | 0 | 0.001 | -0.006 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000013 | SLD 4 | 0 | 0 | 0.001 | -0.006 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000044 | SLD 5 | 0 | 0 | 0 | -0.02 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000044 | SLD 6 | 0 | 0 | 0 | -0.02 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000001 | SLD 7 | 0 | 0 | -0.002 | -0.004 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000001 | SLD 8 | 0 | 0 | -0.002 | -0.004 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000042 | SLD 9 | 0 | 0 | 0.002 | -0.02 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000042 | SLD 10 | 0 | 0 | 0.002 | -0.02 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000007 | SLD 11 | 0 | 0 | 0.001 | -0.003 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000007 | SLD 12 | 0 | 0 | 0 | -0.003 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000003 | SLD 13 | 0 | 0 | 0.005 | -0.013 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000029 | SLD 14 | 0 | 0 | 0.004 | -0.013 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000019 | SLD 15 | 0 | 0 | 0.004 | -0.008 | si |
| 2364 | 692.5 | 1397.5 | -20 | 5830 | 445 | 0.000019 | SLD 16 | 0 | 0 | 0.004 | -0.008 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000005 | SLD 1 | 0 | 0 | -0.002 | 0 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000005 | SLD 2 | 0 | 0 | -0.002 | 0 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000012 | SLD 3 | 0 | 0 | -0.004 | 0.004 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000012 | SLD 4 | 0 | 0 | -0.004 | 0.004 | si |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| Nodo inferiore | | | | Nodo superiore | | Spot. rel. | Comb. n.b. | Spostamento inferiore | | Spostamento superiore | | S.V. |
|----------------|--------|--------|-----|----------------|--------|------------|------------|-----------------------|--------|-----------------------|--------|------|
| I. | X | Pos. Y | Z | I. | Pos. Z | | | X | Y | X | Y | |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000029 | SLD 5 | 0 | 0 | 0.002 | -0.013 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000029 | SLD 6 | 0 | 0 | -0.002 | -0.013 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000007 | SLD 7 | 0 | 0 | -0.003 | 0.002 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000007 | SLD 8 | 0 | 0 | -0.003 | 0.002 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000024 | SLD 9 | 0 | 0 | 0.001 | -0.011 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000025 | SLD 10 | 0 | 0 | 0.001 | -0.011 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000011 | SLD 11 | 0 | 0 | -0.003 | 0.004 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000001 | SLD 12 | 0 | 0 | -0.003 | 0.004 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000007 | SLD 13 | 0 | 0 | -0.001 | -0.003 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000008 | SLD 14 | 0 | 0 | -0.001 | -0.004 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000005 | SLD 15 | 0 | 0 | -0.002 | 0.001 | si |
| 2365 | 1367.5 | 1397.5 | -20 | 5844 | 445 | 0.000005 | SLD 16 | 0 | 0 | -0.002 | 0.001 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000047 | SLD 1 | 0 | 0 | 0.006 | 0.021 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000047 | SLD 2 | 0 | 0 | 0.006 | 0.021 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000055 | SLD 3 | 0 | 0 | 0.005 | 0.025 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000055 | SLD 4 | 0 | 0 | 0.005 | 0.025 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000019 | SLD 5 | 0 | 0 | 0.008 | 0.004 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000019 | SLD 6 | 0 | 0 | 0.008 | 0.004 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000039 | SLD 7 | 0 | 0 | 0.005 | 0.017 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000039 | SLD 8 | 0 | 0 | 0.005 | 0.017 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000026 | SLD 9 | 0 | 0 | 0.009 | 0.008 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000026 | SLD 10 | 0 | 0 | 0.009 | 0.008 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000048 | SLD 11 | 0 | 0 | 0.006 | 0.022 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000048 | SLD 12 | 0 | 0 | 0.006 | 0.022 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000043 | SLD 13 | 0 | 0 | 0.009 | 0.018 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000043 | SLD 14 | 0 | 0 | 0.009 | 0.018 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000005 | SLD 15 | 0 | 0 | 0.008 | 0.022 | si |
| 2366 | 2402.5 | 1397.5 | -20 | 5865 | 445 | 0.000005 | SLD 16 | 0 | 0 | 0.008 | 0.022 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.00011 | SLD 1 | 0 | 0 | 0.051 | 0.003 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.00011 | SLD 2 | 0 | 0 | 0.051 | 0.003 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000113 | SLD 3 | 0 | 0 | 0.052 | 0.006 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000113 | SLD 4 | 0 | 0 | 0.052 | 0.006 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000061 | SLD 5 | 0 | 0 | 0.028 | 0.001 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000061 | SLD 6 | 0 | 0 | 0.028 | 0.001 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000075 | SLD 7 | 0 | 0 | 0.032 | 0.014 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000075 | SLD 8 | 0 | 0 | 0.032 | 0.014 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000086 | SLD 9 | 0 | 0 | 0.04 | 0.003 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000086 | SLD 10 | 0 | 0 | 0.04 | 0.003 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000099 | SLD 11 | 0 | 0 | 0.043 | 0.015 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000099 | SLD 12 | 0 | 0 | 0.043 | 0.015 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000119 | SLD 13 | 0 | 0 | 0.054 | 0.009 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000119 | SLD 14 | 0 | 0 | 0.054 | 0.009 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000122 | SLD 15 | 0 | 0 | 0.056 | 0.012 | si |
| 2367 | 3437.5 | 1397.5 | -20 | 5886 | 445 | 0.000122 | SLD 16 | 0 | 0 | 0.056 | 0.012 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000062 | SLD 1 | -0.001 | -0.011 | -0.006 | -0.035 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000061 | SLD 2 | -0.001 | -0.011 | -0.006 | -0.035 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000052 | SLD 3 | -0.002 | -0.009 | -0.007 | -0.029 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000051 | SLD 4 | -0.002 | -0.009 | -0.007 | -0.029 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000071 | SLD 5 | -0.002 | -0.013 | -0.007 | -0.041 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000071 | SLD 6 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000038 | SLD 7 | -0.002 | -0.006 | -0.008 | -0.02 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000037 | SLD 8 | -0.002 | -0.006 | -0.009 | -0.02 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000074 | SLD 9 | -0.001 | -0.013 | -0.003 | -0.043 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000073 | SLD 10 | -0.001 | -0.013 | -0.003 | -0.043 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000039 | SLD 11 | -0.001 | -0.007 | -0.005 | -0.022 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000038 | SLD 12 | -0.001 | -0.007 | -0.005 | -0.022 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000066 | SLD 13 | 0 | -0.012 | 0.001 | -0.038 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000065 | SLD 14 | 0 | -0.012 | 0.001 | -0.038 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000055 | SLD 15 | 0 | -0.01 | 0 | -0.032 | si |
| 3111 | 17.5 | 17.5 | 150 | 6007 | 554 | 0.000054 | SLD 16 | 0 | -0.01 | 0 | -0.032 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000065 | SLD 1 | -0.001 | -0.012 | -0.006 | -0.038 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000066 | SLD 2 | -0.001 | -0.012 | -0.006 | -0.038 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000056 | SLD 3 | -0.002 | -0.01 | -0.007 | -0.032 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000056 | SLD 4 | -0.002 | -0.01 | -0.007 | -0.032 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000069 | SLD 5 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.00007 | SLD 6 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000038 | SLD 7 | -0.002 | -0.006 | -0.008 | -0.02 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000039 | SLD 8 | -0.002 | -0.007 | -0.009 | -0.021 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000074 | SLD 9 | -0.001 | -0.013 | -0.003 | -0.043 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000074 | SLD 10 | -0.001 | -0.013 | -0.003 | -0.043 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000041 | SLD 11 | -0.001 | -0.008 | -0.005 | -0.024 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000042 | SLD 12 | -0.001 | -0.008 | -0.005 | -0.024 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000068 | SLD 13 | 0 | -0.013 | 0.001 | -0.04 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000069 | SLD 14 | 0 | -0.013 | 0.001 | -0.041 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000058 | SLD 15 | 0 | -0.011 | 0 | -0.034 | si |
| 3138 | 1367.5 | 17.5 | 150 | 6034 | 554 | 0.000059 | SLD 16 | 0 | -0.011 | 0 | -0.035 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000065 | SLD 1 | -0.001 | -0.012 | -0.006 | -0.038 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000066 | SLD 2 | -0.001 | -0.012 | -0.006 | -0.038 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000056 | SLD 3 | -0.001 | -0.01 | -0.006 | -0.032 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000056 | SLD 4 | -0.001 | -0.01 | -0.006 | -0.032 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000069 | SLD 5 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.00007 | SLD 6 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000038 | SLD 7 | -0.002 | -0.006 | -0.009 | -0.02 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000039 | SLD 8 | -0.002 | -0.007 | -0.009 | -0.021 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000074 | SLD 9 | -0.001 | -0.013 | -0.003 | -0.043 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000074 | SLD 10 | -0.001 | -0.013 | -0.003 | -0.043 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000041 | SLD 11 | -0.001 | -0.008 | -0.005 | -0.024 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000042 | SLD 12 | -0.001 | -0.008 | -0.005 | -0.024 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000068 | SLD 13 | 0.001 | -0.013 | 0.001 | -0.04 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000069 | SLD 14 | 0.001 | -0.013 | 0.001 | -0.041 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000058 | SLD 15 | 0.001 | -0.011 | 0.001 | -0.034 | si |
| 3148 | 1367.5 | 270 | 150 | 6045 | 554 | 0.000059 | SLD 16 | 0.001 | -0.011 | 0.001 | -0.035 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000065 | SLD 1 | -0.001 | -0.012 | -0.005 | -0.038 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000066 | SLD 2 | -0.001 | -0.012 | -0.005 | -0.038 | si |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| Nodo inferiore | | | | Nodo superiore | | Spost. rel. | Comb. n.b. | Spostamento inferiore | | Spostamento superiore | | S.V. |
|----------------|--------|--------|-----|----------------|--------|-------------|------------|-----------------------|--------|-----------------------|--------|------|
| I. | X | Pos. Y | Z | I. | Pos. Z | | | X | Y | X | Y | |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000055 | SLD 3 | -0.001 | -0.01 | -0.006 | -0.032 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000056 | SLD 4 | -0.001 | -0.01 | -0.006 | -0.032 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000069 | SLD 5 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.00007 | SLD 6 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000038 | SLD 7 | -0.003 | -0.008 | -0.009 | -0.02 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000038 | SLD 8 | -0.002 | -0.007 | -0.009 | -0.021 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000074 | SLD 9 | 0 | -0.013 | -0.002 | -0.043 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000074 | SLD 10 | 0 | -0.014 | -0.002 | -0.044 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000041 | SLD 11 | -0.001 | -0.008 | -0.004 | -0.024 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000042 | SLD 12 | -0.001 | -0.008 | -0.004 | -0.024 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000068 | SLD 13 | 0.001 | -0.013 | 0.002 | -0.04 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000069 | SLD 14 | 0.001 | -0.013 | 0.002 | -0.041 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000058 | SLD 15 | 0.001 | -0.011 | 0.002 | -0.034 | si |
| 3247 | 1367.5 | 630 | 150 | 6088 | 554 | 0.000059 | SLD 16 | 0.001 | -0.011 | 0.002 | -0.035 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000064 | SLD 1 | -0.001 | -0.011 | -0.005 | -0.037 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000063 | SLD 2 | -0.001 | -0.011 | -0.005 | -0.037 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000054 | SLD 3 | -0.001 | -0.01 | -0.006 | -0.031 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000053 | SLD 4 | -0.001 | -0.009 | -0.006 | -0.031 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.00007 | SLD 5 | -0.002 | -0.013 | -0.007 | -0.04 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.00007 | SLD 6 | -0.002 | -0.013 | -0.007 | -0.04 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000038 | SLD 7 | -0.003 | -0.006 | -0.009 | -0.02 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000038 | SLD 8 | -0.002 | -0.006 | -0.009 | -0.02 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000074 | SLD 9 | 0 | -0.013 | -0.002 | -0.043 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000074 | SLD 10 | 0 | -0.013 | -0.002 | -0.043 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.00004 | SLD 11 | -0.001 | -0.007 | -0.004 | -0.023 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.00004 | SLD 12 | -0.001 | -0.007 | -0.004 | -0.023 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000067 | SLD 13 | 0.001 | -0.012 | 0.002 | -0.039 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000067 | SLD 14 | 0.001 | -0.012 | 0.002 | -0.039 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000057 | SLD 15 | 0.001 | -0.01 | 0.002 | -0.033 | si |
| 3262 | 692.5 | 647.5 | 150 | 6074 | 554 | 0.000056 | SLD 16 | 0.001 | -0.01 | 0.002 | -0.033 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000062 | SLD 1 | -0.001 | -0.011 | -0.005 | -0.035 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000061 | SLD 2 | -0.001 | -0.011 | -0.005 | -0.035 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000052 | SLD 3 | -0.001 | -0.009 | -0.006 | -0.029 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000051 | SLD 4 | -0.001 | -0.009 | -0.006 | -0.029 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000071 | SLD 5 | -0.002 | -0.013 | -0.007 | -0.041 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.00007 | SLD 6 | -0.002 | -0.012 | -0.007 | -0.04 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000038 | SLD 7 | -0.003 | -0.006 | -0.009 | -0.02 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000037 | SLD 8 | -0.002 | -0.006 | -0.009 | -0.02 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000074 | SLD 9 | 0 | -0.013 | -0.002 | -0.043 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000073 | SLD 10 | 0 | -0.013 | -0.002 | -0.043 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000039 | SLD 11 | -0.001 | -0.007 | -0.004 | -0.022 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000038 | SLD 12 | -0.001 | -0.007 | -0.004 | -0.022 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000066 | SLD 13 | 0.001 | -0.012 | 0.002 | -0.038 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000065 | SLD 14 | 0.001 | -0.012 | 0.002 | -0.038 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000055 | SLD 15 | 0.001 | -0.01 | 0.002 | -0.032 | si |
| 3278 | 17.5 | 665 | 150 | 6060 | 554 | 0.000054 | SLD 16 | 0.001 | -0.01 | 0.002 | -0.032 | si |

7.2 Verifica effetti secondo ordine

Quota inf.: Quota inferiore esprimibile come livello, falda, piano orizzontale alla Z specificata, espressa con notazione breve. esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Quota sup.: Quota superiore esprimibile come livello, falda, piano orizzontale alla Z specificata, espressa con notazione breve. esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Comb.: Combinazione.

n.b.: Nome breve o compatto della combinazione di carico.

Carico verticale: Carico verticale. [daN]

Spostamento: Spostamento medio di interpiano. [cm]

Forza orizzontale totale: Forza orizzontale totale. [daN]

Altezza del piano: Altezza del piano. [cm]

Theta: Coefficiente Theta formula (7.3.2) § 7.3.1 NTC 2008. Il valore è adimensionale.

| Quota inf. | Quota sup. | Comb. | Carico verticale | Spostamento | Forza orizzontale totale | Altezza del piano | Theta |
|------------|------------|--------|------------------|-------------|--------------------------|-------------------|-------|
| | | n.b. | | | | | |
| L1 | L2 | SLV 1 | 609457 | 0.037 | 262307 | 170 | 0.001 |
| L1 | L2 | SLV 2 | 609457 | 0.037 | 262307 | 170 | 0.001 |
| L1 | L2 | SLV 3 | 611849 | 0.026 | 255219 | 170 | 0 |
| L1 | L2 | SLV 4 | 611849 | 0.026 | 255219 | 170 | 0 |
| L1 | L2 | SLV 5 | 610338 | 0.049 | 215436 | 170 | 0.001 |
| L1 | L2 | SLV 6 | 610338 | 0.048 | 215436 | 170 | 0.001 |
| L1 | L2 | SLV 7 | 618312 | 0.013 | 195999 | 170 | 0 |
| L1 | L2 | SLV 8 | 618312 | 0.013 | 195999 | 170 | 0 |
| L1 | L2 | SLV 9 | 613485 | 0.052 | 359011 | 170 | 0.001 |
| L1 | L2 | SLV 10 | 613485 | 0.052 | 359011 | 170 | 0.001 |
| L1 | L2 | SLV 11 | 621459 | 0.013 | 340020 | 170 | 0 |
| L1 | L2 | SLV 12 | 621459 | 0.013 | 340020 | 170 | 0 |
| L1 | L2 | SLV 13 | 619948 | 0.043 | 523576 | 170 | 0 |
| L1 | L2 | SLV 14 | 619948 | 0.043 | 523576 | 170 | 0 |
| L1 | L2 | SLV 15 | 622340 | 0.031 | 517979 | 170 | 0 |
| L1 | L2 | SLV 16 | 622340 | 0.031 | 517979 | 170 | 0 |
| L1 | L3 | SLV 1 | 127797 | 0.033 | 35911 | 465 | 0 |
| L1 | L3 | SLV 2 | 127819 | 0.033 | 35890 | 465 | 0 |
| L1 | L3 | SLV 3 | 127754 | 0.028 | 35452 | 465 | 0 |
| L1 | L3 | SLV 4 | 127777 | 0.028 | 35245 | 465 | 0 |
| L1 | L3 | SLV 5 | 127697 | 0.065 | 56174 | 465 | 0 |
| L1 | L3 | SLV 6 | 127730 | 0.065 | 56425 | 465 | 0 |
| L1 | L3 | SLV 7 | 127556 | 0.036 | 55897 | 465 | 0 |
| L1 | L3 | SLV 8 | 127589 | 0.036 | 55575 | 465 | 0 |

Ampliamento e potenziamento dell'impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| Quota inf. | Quota sup. | Comb. | Carico verticale | Spostamento | Forza orizzontale totale | Altezza del piano | Theta |
|------------|------------|-------------|------------------|-------------|--------------------------|-------------------|-------|
| | | n.b. | | | | | |
| L1 | L3 | SLV 9 | 127783 | 0.066 | 60942 | 465 | 0 |
| L1 | L3 | SLV 10 | 127816 | 0.066 | 61288 | 465 | 0 |
| L1 | L3 | SLV 11 | 127642 | 0.047 | 60620 | 465 | 0 |
| L1 | L3 | SLV 12 | 127675 | 0.047 | 60439 | 465 | 0 |
| L1 | L3 | SLV 13 | 127839 | 0.05 | 70210 | 465 | 0 |
| L1 | L3 | SLV 14 | 127862 | 0.05 | 70385 | 465 | 0 |
| L1 | L3 | SLV 15 | 127797 | 0.047 | 70084 | 465 | 0 |
| L1 | L3 | SLV 16 | 127820 | 0.046 | 70166 | 465 | 0 |
| L2 | L4 | SLV 1 | 43990 | 0.085 | 21278 | 404 | 0 |
| L2 | L4 | SLV 2 | 43990 | 0.085 | 21278 | 404 | 0 |
| L2 | L4 | SLV 3 | 43990 | 0.061 | 20855 | 404 | 0 |
| L2 | L4 | SLV 4 | 43990 | 0.061 | 20855 | 404 | 0 |
| L2 | L4 | SLV 5 | 43990 | 0.109 | 21154 | 404 | 0.001 |
| L2 | L4 | SLV 6 | 43990 | 0.109 | 21154 | 404 | 0.001 |
| L2 | L4 | SLV 7 | 43990 | 0.031 | 20729 | 404 | 0 |
| L2 | L4 | SLV 8 | 43990 | 0.031 | 20729 | 404 | 0 |
| L2 | L4 | SLV 9 | 43990 | 0.116 | 20729 | 404 | 0.001 |
| L2 | L4 | SLV 10 | 43990 | 0.116 | 20729 | 404 | 0.001 |
| L2 | L4 | SLV 11 | 43990 | 0.028 | 21154 | 404 | 0 |
| L2 | L4 | SLV 12 | 43990 | 0.028 | 21154 | 404 | 0 |
| L2 | L4 | SLV 13 | 43990 | 0.094 | 20855 | 404 | 0 |
| L2 | L4 | SLV 14 | 43990 | 0.094 | 20855 | 404 | 0 |
| L2 | L4 | SLV 15 | 43990 | 0.067 | 21278 | 404 | 0 |
| L2 | L4 | SLV 16 | 43990 | 0.067 | 21278 | 404 | 0 |

7.3 Verifica deformabilità torsionale struttura

Quota superiore: Quota superiore dell'interpiano per il quale è stata valutata la rigidezza relativa. esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

Quota inferiore: Quota inferiore dell'interpiano per il quale è stata valutata la rigidezza relativa. esprimibile come livello, falda, piano orizzontale alla Z specificata. [cm]

KUx: Rigidezza relativa alla traslazione in direzione globale X. [daN/cm]

KUy: Rigidezza relativa alla traslazione in direzione globale Y. [daN/cm]

KRz: Rigidezza relativa alla rotazione attorno l'asse globale Z. [daN*cm/rad]

L: Dimensione in pianta, lungo l'asse globale X, dell'edificio. [cm]

B: Dimensione in pianta, lungo l'asse globale Y, dell'edificio. [cm]

Is: Radice quadrata di $(L^2+B^2)/12$. [cm]

rx/Is: Rapporto rx/Is. Il valore è adimensionale.

ry/Is: Rapporto ry/Is. Il valore è adimensionale.

| Quota superiore | Quota inferiore | KUx | KUy | KRz | L | B | Is | rx/Is | ry/Is |
|-----------------|-----------------|----------|----------|------------|------|-----|------|-------|-------|
| L2 | L1 | 19678929 | 10377767 | 2.4515E013 | 1385 | 665 | 444 | 2.52 | 3.47 |
| L3 | L2 | 23816133 | 27433486 | 1.7970E013 | 3455 | 255 | 1000 | 0.87 | 0.81 |
| L4 | L3 | 5160011 | 4180166 | 5.0632E012 | 1385 | 665 | 444 | 2.23 | 2.48 |

7.4 Tagli ai livelli

Livello: Livello rispetto a cui è calcolato il taglio.

Nome: Nome completo del livello.

Cont.: Contesto nel quale viene valutato il taglio.

n.br.: Nome breve della condizione o combinazione di carico.

Totale: Totale del taglio al livello.

F: Forza del taglio. [daN]

X: Componente lungo l'asse X globale. [daN]

Y: Componente lungo l'asse Y globale. [daN]

Z: Componente lungo l'asse Z globale. [daN]

Aste verticali: Contributo al taglio totale dato dalle aste verticali.

F: Forza del taglio. [daN]

X: Componente lungo l'asse X globale. [daN]

Y: Componente lungo l'asse Y globale. [daN]

Z: Componente lungo l'asse Z globale. [daN]

Pareti: Contributo al taglio totale dato dalle pareti e piastre generiche verticali.

F: Forza del taglio. [daN]

X: Componente lungo l'asse X globale. [daN]

Y: Componente lungo l'asse Y globale. [daN]

Z: Componente lungo l'asse Z globale. [daN]

| Livello | Cont. | Totale | | | Aste verticali | | | Pareti | | |
|------------|---------------------|--------|-----|---------|----------------|---|---|--------|-----|---------|
| | | F | F | F | F | F | F | F | F | |
| Nome | n.br. | X | Y | Z | X | Y | Z | X | Y | Z |
| Fondazione | Pesi | 0 | 0 | -741677 | 0 | 0 | 0 | 0 | 0 | -741677 |
| Fondazione | Port. | 0 | 0 | -30343 | 0 | 0 | 0 | 0 | 0 | -30343 |
| Fondazione | Permanenti macchine | 0 | 0 | -63657 | 0 | 0 | 0 | 0 | 0 | -63657 |
| Fondazione | Spinta terreno | -2367 | -58 | 0 | 0 | 0 | 0 | -2367 | -58 | 0 |
| Fondazione | Variabile A | -3170 | -50 | -41518 | 0 | 0 | 0 | -3170 | -50 | -41518 |
| Fondazione | Neve | 0 | 0 | -9875 | 0 | 0 | 0 | 0 | 0 | -9875 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| Livello Nome | Cont. n.br. | Totale | | | Aste verticali | | | Pareti | | |
|-----------------|------------------------|--------|---------|----------|----------------|---|---|--------|---------|----------|
| | | X | Y | Z | X | Y | Z | X | Y | Z |
| Fondazione | Spinta sismica terreno | -10459 | 11093 | 0 | 0 | 0 | 0 | -10459 | 11093 | 0 |
| Fondazione | Spinta sismica liquame | 211386 | 122 | 0 | 0 | 0 | 0 | 211386 | 122 | 0 |
| Fondazione | Liquame | 365490 | 378 | 0 | 0 | 0 | 0 | 365490 | 378 | 0 |
| Fondazione | X SLV | 138660 | 10257 | -6883 | 0 | 0 | 0 | 138660 | 10257 | -6883 |
| Fondazione | Y SLV | -5052 | 155827 | -3980 | 0 | 0 | 0 | -5052 | 155827 | -3980 |
| Fondazione | EY SLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fondazione | EX SLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fondazione | X SLD | 58358 | 4414 | -2821 | 0 | 0 | 0 | 58358 | 4414 | -2821 |
| Fondazione | Y SLD | -2645 | 73401 | -1745 | 0 | 0 | 0 | -2645 | 73401 | -1745 |
| Fondazione | EY SLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fondazione | EX SLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fondazione | R Ux | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Fondazione | R Uy | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Fondazione | R Rz | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fondazione | SLU 1 | 540403 | 418 | -1156065 | 0 | 0 | 0 | 540403 | 418 | -1156065 |
| Fondazione | SLU 2 | 541830 | 440 | -1144788 | 0 | 0 | 0 | 541830 | 440 | -1144788 |
| Fondazione | SLU 3 | 541830 | 440 | -1137381 | 0 | 0 | 0 | 541830 | 440 | -1137381 |
| Fondazione | SLE RA 1 | 359953 | 271 | -882133 | 0 | 0 | 0 | 359953 | 271 | -882133 |
| Fondazione | SLE FR 1 | 215342 | 144 | -856437 | 0 | 0 | 0 | 215342 | 144 | -856437 |
| Fondazione | SLE FR 2 | 215976 | 154 | -850108 | 0 | 0 | 0 | 215976 | 154 | -850108 |
| Fondazione | SLE FR 3 | 325623 | 268 | -848133 | 0 | 0 | 0 | 325623 | 268 | -848133 |
| Fondazione | SLE QP 1 | 215976 | 154 | -848133 | 0 | 0 | 0 | 215976 | 154 | -848133 |
| Fondazione | SLD 1 | 505534 | -14914 | -844789 | 0 | 0 | 0 | 505534 | -14914 | -844789 |
| Fondazione | SLD 2 | 505534 | -14914 | -844789 | 0 | 0 | 0 | 505534 | -14914 | -844789 |
| Fondazione | SLD 3 | 503947 | 29126 | -845836 | 0 | 0 | 0 | 503947 | 29126 | -845836 |
| Fondazione | SLD 4 | 503947 | 29126 | -845836 | 0 | 0 | 0 | 503947 | 29126 | -845836 |
| Fondazione | SLD 5 | 287032 | -77784 | -845541 | 0 | 0 | 0 | 287032 | -77784 | -845541 |
| Fondazione | SLD 6 | 287032 | -77784 | -845541 | 0 | 0 | 0 | 287032 | -77784 | -845541 |
| Fondazione | SLD 7 | 281742 | 69018 | -849032 | 0 | 0 | 0 | 281742 | 69018 | -849032 |
| Fondazione | SLD 8 | 281742 | 69018 | -849032 | 0 | 0 | 0 | 281742 | 69018 | -849032 |
| Fondazione | SLD 9 | 442602 | -68407 | -847234 | 0 | 0 | 0 | 442602 | -68407 | -847234 |
| Fondazione | SLD 10 | 442602 | -68407 | -847234 | 0 | 0 | 0 | 442602 | -68407 | -847234 |
| Fondazione | SLD 11 | 437313 | 78395 | -850725 | 0 | 0 | 0 | 437313 | 78395 | -850725 |
| Fondazione | SLD 12 | 437313 | 78395 | -850725 | 0 | 0 | 0 | 437313 | 78395 | -850725 |
| Fondazione | SLD 13 | 622250 | -6086 | -850430 | 0 | 0 | 0 | 622250 | -6086 | -850430 |
| Fondazione | SLD 14 | 622250 | -6086 | -850430 | 0 | 0 | 0 | 622250 | -6086 | -850430 |
| Fondazione | SLD 15 | 620663 | 37954 | -851477 | 0 | 0 | 0 | 620663 | 37954 | -851477 |
| Fondazione | SLD 16 | 620663 | 37954 | -851477 | 0 | 0 | 0 | 620663 | 37954 | -851477 |
| Fondazione | SLV 1 | 425954 | -45485 | -840056 | 0 | 0 | 0 | 425954 | -45485 | -840056 |
| Fondazione | SLV 2 | 425954 | -45485 | -840056 | 0 | 0 | 0 | 425954 | -45485 | -840056 |
| Fondazione | SLV 3 | 422923 | 48011 | -842444 | 0 | 0 | 0 | 422923 | 48011 | -842444 |
| Fondazione | SLV 4 | 422923 | 48011 | -842444 | 0 | 0 | 0 | 422923 | 48011 | -842444 |
| Fondazione | SLV 5 | 265349 | -161963 | -842088 | 0 | 0 | 0 | 265349 | -161963 | -842088 |
| Fondazione | SLV 6 | 265349 | -161963 | -842088 | 0 | 0 | 0 | 265349 | -161963 | -842088 |
| Fondazione | SLV 7 | 255244 | 149691 | -850048 | 0 | 0 | 0 | 255244 | 149691 | -850048 |
| Fondazione | SLV 8 | 255244 | 149691 | -850048 | 0 | 0 | 0 | 255244 | 149691 | -850048 |
| Fondazione | SLV 9 | 469100 | -149080 | -846218 | 0 | 0 | 0 | 469100 | -149080 | -846218 |
| Fondazione | SLV 10 | 469100 | -149080 | -846218 | 0 | 0 | 0 | 469100 | -149080 | -846218 |
| Fondazione | SLV 11 | 458996 | 162574 | -854178 | 0 | 0 | 0 | 458996 | 162574 | -854178 |
| Fondazione | SLV 12 | 458996 | 162574 | -854178 | 0 | 0 | 0 | 458996 | 162574 | -854178 |
| Fondazione | SLV 13 | 703274 | -24971 | -853821 | 0 | 0 | 0 | 703274 | -24971 | -853821 |
| Fondazione | SLV 14 | 703274 | -24971 | -853821 | 0 | 0 | 0 | 703274 | -24971 | -853821 |
| Fondazione | SLV 15 | 700242 | 68525 | -856210 | 0 | 0 | 0 | 700242 | 68525 | -856210 |
| Fondazione | SLV 16 | 700242 | 68525 | -856210 | 0 | 0 | 0 | 700242 | 68525 | -856210 |
| Fondazione | SLV FO 1 | 211314 | -62400 | -839249 | 0 | 0 | 0 | 211314 | -62400 | -839249 |
| Fondazione | SLV FO 2 | 211314 | -62400 | -839249 | 0 | 0 | 0 | 211314 | -62400 | -839249 |
| Fondazione | SLV FO 3 | 207979 | 40446 | -841876 | 0 | 0 | 0 | 207979 | 40446 | -841876 |
| Fondazione | SLV FO 4 | 207979 | 40446 | -841876 | 0 | 0 | 0 | 207979 | 40446 | -841876 |
| Fondazione | SLV FO 5 | 321972 | -174489 | -841484 | 0 | 0 | 0 | 321972 | -174489 | -841484 |
| Fondazione | SLV FO 6 | 321972 | -174489 | -841484 | 0 | 0 | 0 | 321972 | -174489 | -841484 |
| Fondazione | SLV FO 7 | 310857 | 168330 | -850240 | 0 | 0 | 0 | 310857 | 168330 | -850240 |
| Fondazione | SLV FO 8 | 310857 | 168330 | -850240 | 0 | 0 | 0 | 310857 | 168330 | -850240 |
| Fondazione | SLV FO 9 | 413487 | -167719 | -846026 | 0 | 0 | 0 | 413487 | -167719 | -846026 |
| Fondazione | SLV FO 10 | 413487 | -167719 | -846026 | 0 | 0 | 0 | 413487 | -167719 | -846026 |
| Fondazione | SLV FO 11 | 402372 | 175100 | -854782 | 0 | 0 | 0 | 402372 | 175100 | -854782 |
| Fondazione | SLV FO 12 | 402372 | 175100 | -854782 | 0 | 0 | 0 | 402372 | 175100 | -854782 |
| Fondazione | SLV FO 13 | 516365 | -39835 | -854390 | 0 | 0 | 0 | 516365 | -39835 | -854390 |
| Fondazione | SLV FO 14 | 518732 | -39777 | -854390 | 0 | 0 | 0 | 518732 | -39777 | -854390 |
| Fondazione | SLV FO 15 | 513031 | 63011 | -857017 | 0 | 0 | 0 | 513031 | 63011 | -857017 |
| Fondazione | SLV FO 16 | 513031 | 63011 | -857017 | 0 | 0 | 0 | 513031 | 63011 | -857017 |
| Fondazione | CRTFP Ux+ | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Fondazione | CRTFP Ux- | -1 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 |
| Fondazione | CRTFP Uy+ | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Fondazione | CRTFP Uy- | 0 | -1 | 0 | 0 | 0 | 0 | 0 | -1 | 0 |
| Fondazione | CRTFP Rz+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fondazione | CRTFP Rz- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | Pesi | 0 | 0 | -475341 | 0 | 0 | 0 | 0 | 0 | -475341 |
| Piano 1 | Port. | 0 | 0 | -16703 | 0 | 0 | 0 | 0 | 0 | -16703 |
| Piano 1 | Permanenti macchine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | Spinta terreno | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | Variabile A | 0 | 0 | -23331 | 0 | 0 | 0 | 0 | 0 | -23331 |
| Piano 1 | Neve | 0 | 0 | -9875 | 0 | 0 | 0 | 0 | 0 | -9875 |
| Piano 1 | Spinta sismica terreno | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | Spinta sismica liquame | 133268 | -279 | 0 | 0 | 0 | 0 | 133268 | -279 | 0 |
| Piano 1 | Liquame | 177531 | -539 | 0 | 0 | 0 | 0 | 177531 | -539 | 0 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| Livello Nome | Cont. n.br. | Totale | | | Aste verticali | | | Pareti | | |
|-----------------|------------------------|--------|---------|---------|----------------|---|---|--------|---------|---------|
| | | X | Y | Z | X | Y | Z | X | Y | Z |
| Piano 1 | X SLV | 101034 | 2542 | -811 | 0 | 0 | 0 | 101916 | 2553 | -811 |
| Piano 1 | Y SLV | -10657 | 122301 | -2664 | 0 | 0 | 0 | -10716 | 123196 | -2664 |
| Piano 1 | EY SLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | EX SLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | X SLD | 43243 | 1228 | -295 | 0 | 0 | 0 | 43821 | 1224 | -302 |
| Piano 1 | Y SLD | -5149 | 58118 | -1204 | 0 | 0 | 0 | -5185 | 58705 | -1204 |
| Piano 1 | EY SLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | EX SLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | R Ux | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Piano 1 | R Uy | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Piano 1 | R Rz | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | SLU 1 | 266297 | -808 | -682058 | 0 | 0 | 0 | 266297 | -808 | -682058 |
| Piano 1 | SLU 2 | 266297 | -808 | -678966 | 0 | 0 | 0 | 266297 | -808 | -678966 |
| Piano 1 | SLU 3 | 266297 | -808 | -671560 | 0 | 0 | 0 | 266297 | -808 | -671560 |
| Piano 1 | SLE RA 1 | 177531 | -539 | -520311 | 0 | 0 | 0 | 177531 | -539 | -520311 |
| Piano 1 | SLE FR 1 | 106519 | -323 | -503708 | 0 | 0 | 0 | 106519 | -323 | -503708 |
| Piano 1 | SLE FR 2 | 106519 | -323 | -501017 | 0 | 0 | 0 | 106519 | -323 | -501017 |
| Piano 1 | SLE FR 3 | 159778 | -485 | -499042 | 0 | 0 | 0 | 159778 | -485 | -499042 |
| Piano 1 | SLE QF 1 | 106519 | -323 | -499042 | 0 | 0 | 0 | 106519 | -323 | -499042 |
| Piano 1 | SLD 1 | 269101 | -19481 | -498386 | 0 | 0 | 0 | 268534 | -19653 | -498380 |
| Piano 1 | SLD 2 | 269101 | -19481 | -498386 | 0 | 0 | 0 | 268534 | -19653 | -498380 |
| Piano 1 | SLD 3 | 266012 | 15390 | -499108 | 0 | 0 | 0 | 265423 | 15570 | -499102 |
| Piano 1 | SLD 4 | 266012 | 15390 | -499108 | 0 | 0 | 0 | 265423 | 15570 | -499102 |
| Piano 1 | SLD 5 | 129727 | -58941 | -497750 | 0 | 0 | 0 | 129590 | -59527 | -497748 |
| Piano 1 | SLD 6 | 129727 | -58941 | -497750 | 0 | 0 | 0 | 129590 | -59527 | -497748 |
| Piano 1 | SLD 7 | 119429 | 57294 | -500158 | 0 | 0 | 0 | 119219 | 57883 | -500156 |
| Piano 1 | SLD 8 | 119429 | 57294 | -500158 | 0 | 0 | 0 | 119219 | 57883 | -500156 |
| Piano 1 | SLD 9 | 235633 | -58372 | -497927 | 0 | 0 | 0 | 235843 | -58960 | -497929 |
| Piano 1 | SLD 10 | 235633 | -58372 | -497927 | 0 | 0 | 0 | 235843 | -58960 | -497929 |
| Piano 1 | SLD 11 | 225336 | 57864 | -500335 | 0 | 0 | 0 | 225472 | 58450 | -500337 |
| Piano 1 | SLD 12 | 225336 | 57864 | -500335 | 0 | 0 | 0 | 225472 | 58450 | -500337 |
| Piano 1 | SLD 13 | 355586 | -17025 | -498976 | 0 | 0 | 0 | 356176 | -17205 | -498983 |
| Piano 1 | SLD 14 | 355586 | -17025 | -498976 | 0 | 0 | 0 | 356176 | -17205 | -498983 |
| Piano 1 | SLD 15 | 352497 | 17846 | -499699 | 0 | 0 | 0 | 353064 | 18018 | -499705 |
| Piano 1 | SLD 16 | 352497 | 17846 | -499699 | 0 | 0 | 0 | 353064 | 18018 | -499705 |
| Piano 1 | SLV 1 | 212962 | -40050 | -497432 | 0 | 0 | 0 | 212098 | -40330 | -497432 |
| Piano 1 | SLV 2 | 212962 | -40050 | -497432 | 0 | 0 | 0 | 212098 | -40330 | -497432 |
| Piano 1 | SLV 3 | 206568 | 33331 | -499030 | 0 | 0 | 0 | 205669 | 33588 | -499030 |
| Piano 1 | SLV 4 | 206568 | 33331 | -499030 | 0 | 0 | 0 | 205669 | 33588 | -499030 |
| Piano 1 | SLV 5 | 117897 | -123519 | -496135 | 0 | 0 | 0 | 117692 | -124417 | -496135 |
| Piano 1 | SLV 6 | 117897 | -123519 | -496135 | 0 | 0 | 0 | 117692 | -124417 | -496135 |
| Piano 1 | SLV 7 | 96584 | 121083 | -501463 | 0 | 0 | 0 | 96260 | 121976 | -501463 |
| Piano 1 | SLV 8 | 96584 | 121083 | -501463 | 0 | 0 | 0 | 96260 | 121976 | -501463 |
| Piano 1 | SLV 9 | 258478 | -122161 | -496622 | 0 | 0 | 0 | 258803 | -123053 | -496622 |
| Piano 1 | SLV 10 | 258478 | -122161 | -496622 | 0 | 0 | 0 | 258803 | -123053 | -496622 |
| Piano 1 | SLV 11 | 237165 | 122441 | -501950 | 0 | 0 | 0 | 237370 | 123340 | -501950 |
| Piano 1 | SLV 12 | 237165 | 122441 | -501950 | 0 | 0 | 0 | 237370 | 123340 | -501950 |
| Piano 1 | SLV 13 | 415030 | -34966 | -499054 | 0 | 0 | 0 | 415930 | -35223 | -499054 |
| Piano 1 | SLV 14 | 415030 | -34966 | -499054 | 0 | 0 | 0 | 415930 | -35223 | -499054 |
| Piano 1 | SLV 15 | 408636 | 38415 | -500653 | 0 | 0 | 0 | 409500 | 38695 | -500653 |
| Piano 1 | SLV 16 | 408636 | 38415 | -500653 | 0 | 0 | 0 | 409500 | 38695 | -500653 |
| Piano 1 | SLV FO 1 | 69911 | -43694 | -497271 | 0 | 0 | 0 | 68960 | -44002 | -497271 |
| Piano 1 | SLV FO 2 | 69911 | -43694 | -497271 | 0 | 0 | 0 | 68960 | -44002 | -497271 |
| Piano 1 | SLV FO 3 | 62877 | 37025 | -499029 | 0 | 0 | 0 | 61887 | 37308 | -499029 |
| Piano 1 | SLV FO 4 | 62877 | 37025 | -499029 | 0 | 0 | 0 | 61887 | 37308 | -499029 |
| Piano 1 | SLV FO 5 | 155912 | -135909 | -495844 | 0 | 0 | 0 | 155687 | -136897 | -495844 |
| Piano 1 | SLV FO 6 | 155912 | -135909 | -495844 | 0 | 0 | 0 | 155687 | -136897 | -495844 |
| Piano 1 | SLV FO 7 | 132468 | 133154 | -501705 | 0 | 0 | 0 | 132111 | 134135 | -501705 |
| Piano 1 | SLV FO 8 | 132468 | 133154 | -501705 | 0 | 0 | 0 | 132111 | 134135 | -501705 |
| Piano 1 | SLV FO 9 | 222595 | -134231 | -496380 | 0 | 0 | 0 | 222951 | -135212 | -496380 |
| Piano 1 | SLV FO 10 | 222595 | -134231 | -496380 | 0 | 0 | 0 | 222951 | -135212 | -496380 |
| Piano 1 | SLV FO 11 | 199150 | 134831 | -502241 | 0 | 0 | 0 | 199376 | 135820 | -502240 |
| Piano 1 | SLV FO 12 | 199150 | 134831 | -502241 | 0 | 0 | 0 | 199376 | 135820 | -502240 |
| Piano 1 | SLV FO 13 | 292185 | -38102 | -499056 | 0 | 0 | 0 | 293175 | -38385 | -499056 |
| Piano 1 | SLV FO 14 | 292185 | -38102 | -499056 | 0 | 0 | 0 | 293175 | -38385 | -499056 |
| Piano 1 | SLV FO 15 | 285152 | 42617 | -500814 | 0 | 0 | 0 | 286102 | 42925 | -500814 |
| Piano 1 | SLV FO 16 | 285152 | 42617 | -500814 | 0 | 0 | 0 | 286102 | 42925 | -500814 |
| Piano 1 | CRTFP Ux+ | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Piano 1 | CRTFP Ux- | -1 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 |
| Piano 1 | CRTFP Uy+ | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Piano 1 | CRTFP Uy- | 0 | -1 | 0 | 0 | 0 | 0 | 0 | -1 | 0 |
| Piano 1 | CRTFP Rz+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 1 | CRTFP Rz- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | Pesi | 0 | 0 | -66948 | 0 | 0 | 0 | 0 | 0 | -66948 |
| Piano 2 | Port. | 0 | 0 | -13466 | 0 | 0 | 0 | 0 | 0 | -13466 |
| Piano 2 | Permanenti macchine | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | Spinta terreno | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | Variabile A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | Neve | 0 | 0 | -9875 | 0 | 0 | 0 | 0 | 0 | -9875 |
| Piano 2 | Spinta sismica terreno | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | Spinta sismica liquame | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | Liquame | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | X SLV | 26173 | 1610 | 479 | 0 | 0 | 0 | 26173 | 1610 | 479 |
| Piano 2 | Y SLV | 110 | 26946 | -79 | 0 | 0 | 0 | 110 | 26946 | -79 |
| Piano 2 | EY SLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | EX SLV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | X SLD | 11106 | 712 | 198 | 0 | 0 | 0 | 11106 | 712 | 198 |
| Piano 2 | Y SLD | 61 | 12610 | -35 | 0 | 0 | 0 | 61 | 12610 | -35 |
| Piano 2 | EY SLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| Livello Nome | Cont. n.br. | Totale | | | Aste verticali | | | Pareti | | |
|-----------------|----------------|--------|--------|---------|----------------|---|---|--------|--------|---------|
| | | X | Y | Z | X | Y | Z | X | Y | Z |
| Piano 2 | EX SLD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | R Ux | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Piano 2 | R Uy | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Piano 2 | R Rz | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | SLU 1 | 0 | 0 | -111944 | 0 | 0 | 0 | 0 | 0 | -111944 |
| Piano 2 | SLU 2 | 0 | 0 | -119351 | 0 | 0 | 0 | 0 | 0 | -119351 |
| Piano 2 | SLU 3 | 0 | 0 | -111944 | 0 | 0 | 0 | 0 | 0 | -111944 |
| Piano 2 | SLE RA 1 | 0 | 0 | -85352 | 0 | 0 | 0 | 0 | 0 | -85352 |
| Piano 2 | SLE FR 1 | 0 | 0 | -80414 | 0 | 0 | 0 | 0 | 0 | -80414 |
| Piano 2 | SLE FR 2 | 0 | 0 | -82389 | 0 | 0 | 0 | 0 | 0 | -82389 |
| Piano 2 | SLE FR 3 | 0 | 0 | -80414 | 0 | 0 | 0 | 0 | 0 | -80414 |
| Piano 2 | SLE QP 1 | 0 | 0 | -80414 | 0 | 0 | 0 | 0 | 0 | -80414 |
| Piano 2 | SLD 1 | -11124 | -4495 | -80601 | 0 | 0 | 0 | -11124 | -4495 | -80601 |
| Piano 2 | SLD 2 | -11124 | -4495 | -80601 | 0 | 0 | 0 | -11124 | -4495 | -80601 |
| Piano 2 | SLD 3 | -11088 | 3071 | -80622 | 0 | 0 | 0 | -11088 | 3071 | -80622 |
| Piano 2 | SLD 4 | -11088 | 3071 | -80622 | 0 | 0 | 0 | -11088 | 3071 | -80622 |
| Piano 2 | SLD 5 | -3393 | -12824 | -80438 | 0 | 0 | 0 | -3393 | -12824 | -80438 |
| Piano 2 | SLD 6 | -3393 | -12824 | -80438 | 0 | 0 | 0 | -3393 | -12824 | -80438 |
| Piano 2 | SLD 7 | -3271 | 12397 | -80508 | 0 | 0 | 0 | -3271 | 12397 | -80508 |
| Piano 2 | SLD 8 | -3271 | 12397 | -80508 | 0 | 0 | 0 | -3271 | 12397 | -80508 |
| Piano 2 | SLD 9 | 3271 | -12397 | -80319 | 0 | 0 | 0 | 3271 | -12397 | -80319 |
| Piano 2 | SLD 10 | 3271 | -12397 | -80319 | 0 | 0 | 0 | 3271 | -12397 | -80319 |
| Piano 2 | SLD 11 | 3393 | 12824 | -80390 | 0 | 0 | 0 | 3393 | 12824 | -80390 |
| Piano 2 | SLD 12 | 3393 | 12824 | -80390 | 0 | 0 | 0 | 3393 | 12824 | -80390 |
| Piano 2 | SLD 13 | 11088 | -3071 | -80206 | 0 | 0 | 0 | 11088 | -3071 | -80206 |
| Piano 2 | SLD 14 | 11088 | -3071 | -80206 | 0 | 0 | 0 | 11088 | -3071 | -80206 |
| Piano 2 | SLD 15 | 11124 | 4495 | -80227 | 0 | 0 | 0 | 11124 | 4495 | -80227 |
| Piano 2 | SLD 16 | 11124 | 4495 | -80227 | 0 | 0 | 0 | 11124 | 4495 | -80227 |
| Piano 2 | SLV 1 | -26207 | -9693 | -80869 | 0 | 0 | 0 | -26207 | -9693 | -80869 |
| Piano 2 | SLV 2 | -26207 | -9693 | -80869 | 0 | 0 | 0 | -26207 | -9693 | -80869 |
| Piano 2 | SLV 3 | -26140 | 6474 | -80916 | 0 | 0 | 0 | -26140 | 6474 | -80916 |
| Piano 2 | SLV 4 | -26140 | 6474 | -80916 | 0 | 0 | 0 | -26140 | 6474 | -80916 |
| Piano 2 | SLV 5 | -7962 | -27429 | -80478 | 0 | 0 | 0 | -7962 | -27429 | -80478 |
| Piano 2 | SLV 6 | -7962 | -27429 | -80478 | 0 | 0 | 0 | -7962 | -27429 | -80478 |
| Piano 2 | SLV 7 | -7742 | 26463 | -80637 | 0 | 0 | 0 | -7742 | 26463 | -80637 |
| Piano 2 | SLV 8 | -7742 | 26463 | -80637 | 0 | 0 | 0 | -7742 | 26463 | -80637 |
| Piano 2 | SLV 9 | 7742 | -26463 | -80191 | 0 | 0 | 0 | 7742 | -26463 | -80191 |
| Piano 2 | SLV 10 | 7742 | -26463 | -80191 | 0 | 0 | 0 | 7742 | -26463 | -80191 |
| Piano 2 | SLV 11 | 7962 | 27429 | -80350 | 0 | 0 | 0 | 7962 | 27429 | -80350 |
| Piano 2 | SLV 12 | 7962 | 27429 | -80350 | 0 | 0 | 0 | 7962 | 27429 | -80350 |
| Piano 2 | SLV 13 | 26140 | -6474 | -79911 | 0 | 0 | 0 | 26140 | -6474 | -79911 |
| Piano 2 | SLV 14 | 26140 | -6474 | -79911 | 0 | 0 | 0 | 26140 | -6474 | -79911 |
| Piano 2 | SLV 15 | 26207 | 9693 | -79959 | 0 | 0 | 0 | 26207 | 9693 | -79959 |
| Piano 2 | SLV 16 | 26207 | 9693 | -79959 | 0 | 0 | 0 | 26207 | 9693 | -79959 |
| Piano 2 | SLV FO 1 | -28827 | -10663 | -80914 | 0 | 0 | 0 | -28827 | -10663 | -80914 |
| Piano 2 | SLV FO 2 | -28827 | -10663 | -80914 | 0 | 0 | 0 | -28827 | -10663 | -80914 |
| Piano 2 | SLV FO 3 | -28754 | 7122 | -80967 | 0 | 0 | 0 | -28754 | 7122 | -80967 |
| Piano 2 | SLV FO 4 | -28754 | 7122 | -80967 | 0 | 0 | 0 | -28754 | 7122 | -80967 |
| Piano 2 | SLV FO 5 | -8759 | -30172 | -80484 | 0 | 0 | 0 | -8759 | -30172 | -80484 |
| Piano 2 | SLV FO 6 | -8759 | -30172 | -80484 | 0 | 0 | 0 | -8759 | -30172 | -80484 |
| Piano 2 | SLV FO 7 | -8516 | 29109 | -80659 | 0 | 0 | 0 | -8516 | 29109 | -80659 |
| Piano 2 | SLV FO 8 | -8516 | 29109 | -80659 | 0 | 0 | 0 | -8516 | 29109 | -80659 |
| Piano 2 | SLV FO 9 | 8516 | -29109 | -80169 | 0 | 0 | 0 | 8516 | -29109 | -80169 |
| Piano 2 | SLV FO 10 | 8516 | -29109 | -80169 | 0 | 0 | 0 | 8516 | -29109 | -80169 |
| Piano 2 | SLV FO 11 | 8759 | 30172 | -80343 | 0 | 0 | 0 | 8759 | 30172 | -80343 |
| Piano 2 | SLV FO 12 | 8759 | 30172 | -80343 | 0 | 0 | 0 | 8759 | 30172 | -80343 |
| Piano 2 | SLV FO 13 | 28754 | -7122 | -79861 | 0 | 0 | 0 | 28754 | -7122 | -79861 |
| Piano 2 | SLV FO 14 | 28754 | -7122 | -79861 | 0 | 0 | 0 | 28754 | -7122 | -79861 |
| Piano 2 | SLV FO 15 | 28827 | 10663 | -79913 | 0 | 0 | 0 | 28827 | 10663 | -79913 |
| Piano 2 | SLV FO 16 | 28827 | 10663 | -79913 | 0 | 0 | 0 | 28827 | 10663 | -79913 |
| Piano 2 | CRTPP Ux+ | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Piano 2 | CRTPP Ux- | -1 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 |
| Piano 2 | CRTPP Uy+ | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Piano 2 | CRTPP Uy- | 0 | -1 | 0 | 0 | 0 | 0 | 0 | -1 | 0 |
| Piano 2 | CRTPP Rz+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Piano 2 | CRTPP Rz- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

7.5 Risposta modale

Modo: Identificativo del modo di vibrare.

Periodo: Periodo. [s]

Massa X: Massa partecipante in direzione globale X. Il valore è adimensionale.

Massa Y: Massa partecipante in direzione globale Y. Il valore è adimensionale.

Massa Z: Massa partecipante in direzione globale Z. Il valore è adimensionale.

Massa rot X: Massa rotazionale partecipante attorno la direzione globale X. Il valore è adimensionale.

Massa rot Y: Massa rotazionale partecipante attorno la direzione globale Y. Il valore è adimensionale.

Massa rot Z: Massa rotazionale partecipante attorno la direzione globale Z. Il valore è adimensionale.

Totale masse partecipanti:

Traslazione X: 0.887484

Traslazione Y: 0.925644

Traslazione Z: 0

Rotazione X: 0.983997

Rotazione Y: 0.950504

Rotazione Z: 0.749645

| Modo | Periodo | Massa X | Massa Y | Massa Z | Massa rot X | Massa rot Y | Massa rot Z |
|------|---------|---------|---------|---------|-------------|-------------|-------------|
|------|---------|---------|---------|---------|-------------|-------------|-------------|

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| Modo | Periodo | Massa X | Massa Y | Massa Z | Massa rot X | Massa rot Y | Massa rot Z |
|------|-------------|-------------|-------------|---------|-------------|-------------|-------------|
| 1 | 0.273435934 | 0.00000231 | 0.003153309 | 0 | 0.000849201 | 0.00000004 | 0.009677372 |
| 2 | 0.189575442 | 0.003055596 | 0.000010984 | 0 | 0.000011767 | 0.000797709 | 0.000109856 |
| 3 | 0.068834972 | 0.000251099 | 0.02122052 | 0 | 0.022131944 | 0.000188043 | 0.07355636 |
| 4 | 0.062487414 | 0.00145398 | 0.16580273 | 0 | 0.192902886 | 0.001347428 | 0.162583964 |
| 5 | 0.056917116 | 0.019362401 | 0.020885406 | 0 | 0.026832833 | 0.02210063 | 0.001173087 |
| 6 | 0.052523454 | 0.027096787 | 0.018307102 | 0 | 0.02214301 | 0.026339978 | 0.098749422 |
| 7 | 0.048998474 | 0.011848709 | 0.273028428 | 0 | 0.375128509 | 0.014433782 | 0.080453393 |
| 8 | 0.047501127 | 0.005372705 | 0.193744677 | 0 | 0.273415253 | 0.004791856 | 0.056348015 |
| 9 | 0.0362674 | 0.1040774 | 0.002336624 | 0 | 0.004154249 | 0.135481363 | 0.001533822 |
| 10 | 0.033961749 | 0.180835665 | 0.030434032 | 0 | 0.037970867 | 0.251230533 | 0.003243591 |
| 11 | 0.030895395 | 0.093461897 | 0.019049239 | 0 | 0.016179433 | 0.129782415 | 0.093813849 |
| 12 | 0.023174841 | 0.057238587 | 0.024903275 | 0 | 0.011127745 | 0.087921518 | 0.030372108 |
| 13 | 0.019108968 | 0.156436755 | 0.004613502 | 0 | 0.000002425 | 0.20745688 | 0.0637141 |
| 14 | 0.011202853 | 0.142642452 | 0.069219393 | 0 | 0.000504209 | 0.054611888 | 0.002179669 |
| 15 | 0.009684888 | 0.084350106 | 0.078934618 | 0 | 0.000642538 | 0.014019606 | 0.072136046 |

7.6 Equilibrio forze

Contributo: Nome attribuito al sistema risultante.

Fx: Componente X di traslazione del sistema risultante. [daN]

Fy: Componente Y di traslazione del sistema risultante. [daN]

Fz: Componente Z di traslazione del sistema risultante. [daN]

Mx: Componente di momento attorno l'asse X del sistema risultante. [daN*cm]

My: Componente di momento attorno l'asse Y del sistema risultante. [daN*cm]

Mz: Componente di momento attorno l'asse Z del sistema risultante. [daN*cm]

Bilancio in condizione di carico: Pesi strutturali

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|--------------|------------|-------------|----|
| Applicate | 0 | 0 | -1205298.267 | -920747967 | 1910120281 | 0 |
| Reazioni | 0 | 0 | 1205298.267 | 920747967 | -1910120281 | 0 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Permanenti portati

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|------------|-----------|-----------|----|
| Applicate | 0 | 0 | -30343.388 | -13009352 | 25597078 | 0 |
| Reazioni | 0 | 0 | 30343.388 | 13009352 | -25597078 | 0 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Permanenti macchine

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|------------|-----------|-----------|----|
| Applicate | 0 | 0 | -63657.125 | -21115080 | 44632431 | 0 |
| Reazioni | 0 | 0 | 63657.125 | 21115080 | -44632431 | 0 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Spinta terreno

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|-----------|----|----|-------|---------|----------|
| Applicate | -2954.659 | 0 | 0 | 1538 | -155833 | 3883457 |
| Reazioni | 2954.659 | 0 | 0 | -1538 | 155833 | -3883457 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Variabile A

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----------|----|------------|-----------|-----------|----------|
| Applicate | -3611.25 | 0 | -41518.352 | -35890773 | 57178144 | 4748154 |
| Reazioni | 3611.25 | 0 | 41518.352 | 35890773 | -57178144 | -4748154 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Neve

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----------|----------|----------|----|
| Applicate | 0 | 0 | -9875.25 | -3283521 | 6838611 | 0 |
| Reazioni | 0 | 0 | 9875.25 | 3283521 | -6838611 | 0 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

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Bilancio in condizione di carico: Spinta sismica terreno

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|------------|------------|----|----------|---------|-----------|
| Applicate | -11258.523 | 11505.682 | 0 | -1107066 | -965389 | 21000331 |
| Reazioni | 11258.523 | -11505.682 | 0 | 1107066 | 965389 | -21000331 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Spinta sismica liquame

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|-----------|----|-------------|------------|------------|------------|
| Applicate | 220762.6 | 0 | -301342.199 | -234696101 | 551338452 | -189012167 |
| Reazioni | -220762.6 | 0 | 301342.199 | 234696101 | -551338452 | 189012167 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Liquame

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|-------------|----|--------------|-------------|-------------|------------|
| Applicate | 391650.395 | 0 | -1963360.326 | -1529127206 | 3344466501 | -337707401 |
| Reazioni | -391650.395 | 0 | 1963360.326 | 1529127206 | -3344466501 | 337707401 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Sisma X SLV

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|-------------|----|----|----|-----------|------------|
| Applicate | 244275.965 | 0 | 0 | 0 | 84818121 | -176754319 |
| Reazioni | -244275.965 | 0 | 0 | 0 | -84818121 | 176754319 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Sisma Y SLV

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|-------------|----|-----------|----|------------|
| Applicate | 0 | 244275.965 | 0 | -84818121 | 0 | 345656049 |
| Reazioni | 0 | -244275.965 | 0 | 84818121 | 0 | -345656049 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Eccentricità Y per sisma X SLV

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|----|----|----------|
| Applicate | 0 | 0 | 0 | 0 | 0 | -1943338 |
| Reazioni | 0 | 0 | 0 | 0 | 0 | 1943338 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Eccentricità X per sisma Y SLV

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|----|----|----------|
| Applicate | 0 | 0 | 0 | 0 | 0 | 4047403 |
| Reazioni | 0 | 0 | 0 | 0 | 0 | -4047403 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Sisma X SLD

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|-------------|----|----|----|-----------|------------|
| Applicate | 160182.311 | 0 | 0 | 0 | 55618909 | -115905448 |
| Reazioni | -160182.311 | 0 | 0 | 0 | -55618909 | 115905448 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Sisma Y SLD

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|-------------|----|-----------|----|------------|
| Applicate | 0 | 160182.311 | 0 | -55618909 | 0 | 226661614 |
| Reazioni | 0 | -160182.311 | 0 | 55618909 | 0 | -226661614 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Eccentricità Y per sisma X SLD

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|----|----|----------|
| Applicate | 0 | 0 | 0 | 0 | 0 | -1274331 |
| Reazioni | 0 | 0 | 0 | 0 | 0 | 1274331 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Eccentricità X per sisma Y SLD

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|----|----|----------|
| Applicate | 0 | 0 | 0 | 0 | 0 | 2654057 |
| Reazioni | 0 | 0 | 0 | 0 | 0 | -2654057 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Rig. Ux

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|----|------|------|
| Applicate | 1 | 0 | 0 | 0 | 554 | -336 |
| Reazioni | -1 | 0 | 0 | 0 | -554 | 336 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Rig. Uy

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|------|----|------|
| Applicate | 0 | 1 | 0 | -554 | 0 | 699 |
| Reazioni | 0 | -1 | 0 | 554 | 0 | -699 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

Bilancio in condizione di carico: Rig. Rz

| Contributo | Fx | Fy | Fz | Mx | My | Mz |
|------------|----|----|----|----|----|----|
| Applicate | 0 | 0 | 0 | 0 | 0 | 1 |
| Reazioni | 0 | 0 | 0 | 0 | 0 | -1 |
| PDelta | 0 | 0 | 0 | 0 | 0 | 0 |
| Totale | 0 | 0 | 0 | 0 | 0 | 0 |

7.7 Risposta di spettro

Spettro: Condizione elementare corrispondente allo spettro.

n.b.: Nome breve della condizione elementare.

Fx: Componente della forza lungo l'asse X. [daN]

Fy: Componente della forza lungo l'asse Y. [daN]

Fz: Componente della forza lungo l'asse Z. [daN]

Mx: Componente della coppia attorno all'asse X. [daN*cm]

My: Componente della coppia attorno all'asse Y. [daN*cm]

Mz: Componente della coppia attorno all'asse Z. [daN*cm]

Max X: Massima reazione lungo l'asse X.

Valore: Valore massimo della reazione. [daN]

Angolo: Angolo d'ingresso del sisma che provoca il valore massimo della reazione. [deg]

Max Y: Massima reazione lungo l'asse Y.

Valore: Valore massimo della reazione. [daN]

Angolo: Angolo d'ingresso del sisma che provoca il valore massimo della reazione. [deg]

Max Z: Massima reazione lungo l'asse Z.

Valore: Valore massimo della reazione. [daN]

Angolo: Angolo d'ingresso del sisma che provoca il valore massimo della reazione. [deg]

| Spettro n.b. | Fx | Fy | Fz | Mx | My | Mz | Max X | | Max Y | | Max Z | |
|-----------------|----------|-----------|----|----------|----------|----------|----------|--------|-----------|--------|--------|--------|
| | | | | | | | Valore | Angolo | Valore | Angolo | Valore | Angolo |
| X SLV | 95667.07 | 30587.95 | 0 | 6.315E06 | 3.072E07 | 8.411E07 | 95859.85 | 4 | 129798.66 | 94 | 0 | 0 |
| Y SLV | 30587.95 | 129557.33 | 0 | 4.377E07 | 7.994E06 | 1.757E08 | 95859.85 | 4 | 129798.66 | 94 | 0 | 0 |
| X SLD | 40380.25 | 12603.84 | 0 | 2.893E06 | 1.317E07 | 3.541E07 | 40445.73 | 3 | 61537.76 | 94 | 0 | 0 |
| Y SLD | 12603.84 | 61412.24 | 0 | 2.089E07 | 3.470E06 | 8.446E07 | 40445.73 | 3 | 61537.76 | 94 | 0 | 0 |

8 Verifiche

8.1 Verifiche piastre e pareti C.A.

nod.: nodo del modello FEM

sez.: tipo di sezione (o = orizzontale, v = verticale)

B: base della sezione

H: altezza della sezione

Af+: area di acciaio dal lato B (inferiore per le piastre)

Af-: area di acciaio dal lato A (superiore per le piastre)

c+: copriferro dal lato B (inferiore per le piastre)

c-: copriferro dal lato A (superiore per le piastre)

sc: tensione sul calcestruzzo in esercizio

comb ; c: combinazione di carico

c.s.: coefficiente di sicurezza

N: sforzo normale di calcolo

M: momento flettente di calcolo

Mu: momento flettente ultimo

Nu: sforzo normale ultimo

sf: tensione sull'acciaio in esercizio

Wk: apertura caratteristica delle fessure

Sm: distanza media fra le fessure

st: sigma a trazione nel calcestruzzo in condizioni non fessurate

fck: resistenza caratteristica cilindrica del calcestruzzo

fcc: resistenza a compressione di calcolo del calcestruzzo

fctd: resistenza a trazione di calcolo del calcestruzzo

Hcr: altezza critica

q.Hcr: *quota della sezione alla altezza critica

hw: altezza della parete

lw: lunghezza della parete

n.p.: numero di piani

hs: altezza dell'interpiano

Mxd: momento di progetto attorno all'asse x (fuori piano)

Myd: momento di progetto attorno all'asse y (nel piano)

NEd: sforzo normale di progetto

MEd: Momento flettente di progetto di progetto

VEd: sforzo di taglio di progetto

Ngrav.: sforzo normale dovuto ai carichi gravitazionali

NReale.: sforzo normale derivante dall'analisi

VRcd: resistenza a taglio dovuta alle bielle di calcestruzzo

epsilon: coefficiente di maggiorazione del taglio derivante dall'analisi

alfaS: $MEd/(VEd*lw)$ formula 7.4.15

At: area tesa di acciaio

roh: rapporto tra area della sezione orizzontale dell'armatura di anima e l'area della sezione di calcestruzzo

rov: rapporto tra area della sezione verticale dell'armatura di anima e l'area della sezione di calcestruzzo

VRsd: resistenza a taglio della sezione con armature

Somma(Asj)- Ai: somma delle aree delle barre verticali che attraversano la superficie di scorrimento

csi: altezza della parte compressa normalizzata all'altezza della sezione

Vdd: contributo dell'effetto spinotto delle armature verticali

Vfd: contributo della resistenza per attrito

Vid: contributo delle armature inclinate presenti alla base

VRd,s: valore di progetto della resistenza a taglio nei confronti dello scorrimento

l: luce netta della trave di collegamento

h: altezza della trave di collegamento

b: spessore della trave di collegamento

d: altezza utile della trave di collegamento

Asi: area complessiva della armatura a X

M,plast: momenti resistenti della trave a filo appoggio

T,plast: sforzi di taglio nella trave derivanti da gerarchia delle resistenze

Pannello P1

Parete fra le coordinate in pianta (18;1398) (18;0)

da quota -40 a quota 568

Valori in daN, cm

C32/40: rck 400

fyk 4500

Verifica di stato limite ultimo

| nod | sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|------|-----|-----|----|-----|-----|-----|-----|-------|--------|-------|--------|-------|---------|
| 3278 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 2.251 | 3 SLV | -4312 | 281943 | -9708 | -634789 |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.041 | 3 SLU | 11740 | 894641 | 12225 | -931572 |
| 4728 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 5.709 | 13 SLV | 3092 | 38458 | 17655 | -219559 |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.060 | 1 SLV | 10590 | 891630 | 11223 | -944999 |

Combinazione rara

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|------|-----|-----|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|---------|------|---------|------|
| 3278 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -24.5 | 1 ra | -3.26E03 | 1.72E05 | 1197.9 | 1 ra | -3.26E03 | 1.72E05 | 0.00 | 7.4 | 0.0 | 1 ra |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -60.6 | 1 ra | 7.39E03 | 5.86E05 | 3001.8 | 1 ra | 7.39E03 | 5.86E05 | 0.00 | 29.8 | 0.0 | 1 ra |
| 4728 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -3.8 | 1 ra | 3.90E02 | 2.50E04 | 305.9 | 1 ra | 6.36E02 | 2.26E04 | 0.00 | 1.3 | 0.0 | 1 ra |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -51.1 | 1 ra | 7.41E03 | 4.95E05 | 2604.0 | 1 ra | 7.41E03 | 4.95E05 | 0.00 | 25.5 | 0.0 | 1 ra |

Combinazione frequente

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|------|-----|-----|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|---------|------|---------|------|
| 3278 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -23.2 | 3 fr | -3.20E03 | 1.63E05 | 1123.6 | 3 fr | -3.20E03 | 1.63E05 | 0.00 | 7.0 | 0.0 | 1 fr |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -57.9 | 3 fr | 7.22E03 | 5.60E05 | 2877.3 | 3 fr | 7.22E03 | 5.60E05 | 0.00 | 28.5 | 0.0 | 1 fr |
| 4728 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -3.5 | 3 fr | 3.60E02 | 2.26E04 | 280.2 | 3 fr | 5.90E02 | 2.06E04 | 0.00 | 1.2 | 0.0 | 1 fr |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -47.0 | 3 fr | 6.94E03 | 4.55E05 | 2400.1 | 3 fr | 6.94E03 | 4.55E05 | 0.00 | 23.4 | 0.0 | 1 fr |

Combinazione quasi permanente

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|------|-----|-----|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|---------|------|---------|------|
| 3278 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -15.5 | 1 q. | -2.84E03 | 1.11E05 | 680.6 | 1 q. | -2.84E03 | 1.11E05 | 0.00 | 4.6 | 0.0 | 1 q. |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -39.3 | 1 q. | 4.39E03 | 3.80E05 | 1921.6 | 1 q. | 4.39E03 | 3.80E05 | 0.00 | 19.2 | 0.0 | 1 q. |
| 4728 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -2.0 | 1 q. | -1.97E02 | 1.37E04 | 103.8 | 1 q. | -1.97E02 | 1.37E04 | 0.00 | 0.6 | 0.0 | 1 q. |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -31.2 | 1 q. | 4.27E03 | 3.02E05 | 1572.0 | 1 q. | 4.27E03 | 3.02E05 | 0.00 | 15.4 | 0.0 | 1 q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo

Verifica punto a coordinate x=18 y=648 z=403

| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
|-------|----|------|------|-----|-----|-------|------|-------|-------|--------|-------|----------|------|-------|
| v 226 | 35 | 17.7 | 17.7 | 7.1 | 7.1 | 1.770 | | 1 SLV | 13679 | 977517 | 24216 | -1730535 | 2568 | 31930 |

Verifica punto a coordinate x=18 y=1248 z=445

| | | | | | | | | | | | | | | |
|-------|----|-----|-----|-----|-----|-------|--|-------|-------|--------|-------|---------|------|-------|
| o 120 | 35 | 4.7 | 4.7 | 7.0 | 7.0 | 5.408 | | 3 SLV | -1139 | 125803 | -6161 | -680373 | 2298 | 17125 |
|-------|----|-----|-----|-----|-----|-------|--|-------|-------|--------|-------|---------|------|-------|

Combinazione rara

Verifica punto a coordinate x=18 y=648 z=403

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|-------|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|---------|-----|---------|---|
| v 226 | 35 | 17.7 | 17.7 | 7.1 | 7.1 | -26.1 | 1 ra | 1.03E04 | 5.29E05 | 1550.6 | 1 ra | 1.03E04 | 5.29E05 | 0.00 | 12.4 | 0.0 | 1 ra | |

Verifica punto a coordinate x=18 y=1248 z=445

| | | | | | | | | | | | | | | | | | |
|-------|----|-----|-----|-----|-----|-------|------|----------|---------|-------|------|----------|---------|------|-----|-----|------|
| o 120 | 35 | 4.7 | 4.7 | 7.0 | 7.0 | -10.1 | 1 ra | -1.15E03 | 8.34E04 | 532.9 | 1 ra | -1.15E03 | 8.34E04 | 0.00 | 3.1 | 0.0 | 1 ra |
|-------|----|-----|-----|-----|-----|-------|------|----------|---------|-------|------|----------|---------|------|-----|-----|------|

Combinazione frequente

Verifica punto a coordinate x=18 y=648 z=403

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|-------|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|---------|-----|---------|---|
| v 226 | 35 | 17.7 | 17.7 | 7.1 | 7.1 | -24.0 | 3 fr | 9.86E03 | 4.87E05 | 1438.9 | 3 fr | 9.86E03 | 4.87E05 | 0.00 | 11.5 | 0.0 | 3 fr | |

Verifica punto a coordinate x=18 y=1248 z=445

| | | | | | | | | | | | | | | | | | |
|-------|----|-----|-----|-----|-----|------|------|----------|---------|-------|------|----------|---------|------|-----|-----|------|
| o 120 | 35 | 4.7 | 4.7 | 7.0 | 7.0 | -9.7 | 3 fr | -1.03E03 | 7.96E04 | 516.0 | 3 fr | -1.03E03 | 7.96E04 | 0.00 | 3.0 | 0.0 | 3 fr |
|-------|----|-----|-----|-----|-----|------|------|----------|---------|-------|------|----------|---------|------|-----|-----|------|

Combinazione quasi permanente

Verifica punto a coordinate x=18 y=648 z=403

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|-------|----|------|------|-----|-----|-------|------|---------|---------|-------|------|---------|---------|------|---------|-----|---------|---|
| v 226 | 35 | 17.7 | 17.7 | 7.1 | 7.1 | -16.0 | 1 q. | 5.75E03 | 3.24E05 | 931.0 | 1 q. | 5.75E03 | 3.24E05 | 0.00 | 7.5 | 0.0 | 1 q. | |

Verifica punto a coordinate x=18 y=1248 z=445

| | | | | | | | | | | | | | | | | | |
|-------|----|-----|-----|-----|-----|------|------|----------|---------|-------|------|----------|---------|------|-----|-----|------|
| o 120 | 35 | 4.7 | 4.7 | 7.0 | 7.0 | -6.7 | 1 q. | -8.28E02 | 5.53E04 | 346.5 | 1 q. | -8.28E02 | 5.53E04 | 0.00 | 2.0 | 0.0 | 1 q. |
|-------|----|-----|-----|-----|-----|------|------|----------|---------|-------|------|----------|---------|------|-----|-----|------|

Verifica dei pannelli

Pannello : Pannello da Filo 5 a Filo 3

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1397.5 | -17.5 |
| -1397.5 | 17.5 |
| -665.0 | 17.5 |
| -665.0 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1377.5 | -10.5 | 10 | -1357.5 | -10.5 | 10 | -1337.5 | -10.5 | 10 | -1317.5 | -10.5 | 10 | -1297.5 | -10.5 | 10 |
| -1277.5 | -10.5 | 10 | -1257.5 | -10.5 | 10 | -1237.5 | -10.5 | 10 | -1217.5 | -10.5 | 10 | -1197.5 | -10.5 | 10 |
| -1177.5 | -10.5 | 10 | -1157.5 | -10.5 | 10 | -1137.5 | -10.5 | 10 | -1117.5 | -10.5 | 10 | -1097.5 | -10.5 | 10 |
| -1077.5 | -10.5 | 10 | -1057.5 | -10.5 | 10 | -1037.5 | -10.5 | 10 | -1017.5 | -10.5 | 10 | -997.5 | -10.5 | 10 |
| -977.5 | -10.5 | 10 | -957.5 | -10.5 | 10 | -937.5 | -10.5 | 10 | -917.5 | -10.5 | 10 | -897.5 | -10.5 | 10 |
| -877.5 | -10.5 | 10 | -857.5 | -10.5 | 10 | -837.5 | -10.5 | 10 | -817.5 | -10.5 | 10 | -797.5 | -10.5 | 10 |
| -777.5 | -10.5 | 10 | -757.5 | -10.5 | 10 | -737.5 | -10.5 | 10 | -717.5 | -10.5 | 10 | -697.5 | -10.5 | 10 |
| -677.5 | -10.5 | 10 | -1377.5 | 10.5 | 10 | -1357.5 | 10.5 | 10 | -1337.5 | 10.5 | 10 | -1317.5 | 10.5 | 10 |
| -1297.5 | 10.5 | 10 | -1277.5 | 10.5 | 10 | -1257.5 | 10.5 | 10 | -1237.5 | 10.5 | 10 | -1217.5 | 10.5 | 10 |
| -1197.5 | 10.5 | 10 | -1177.5 | 10.5 | 10 | -1157.5 | 10.5 | 10 | -1137.5 | 10.5 | 10 | -1117.5 | 10.5 | 10 |
| -1097.5 | 10.5 | 10 | -1077.5 | 10.5 | 10 | -1057.5 | 10.5 | 10 | -1037.5 | 10.5 | 10 | -1017.5 | 10.5 | 10 |
| -997.5 | 10.5 | 10 | -977.5 | 10.5 | 10 | -957.5 | 10.5 | 10 | -937.5 | 10.5 | 10 | -917.5 | 10.5 | 10 |
| -897.5 | 10.5 | 10 | -877.5 | 10.5 | 10 | -857.5 | 10.5 | 10 | -837.5 | 10.5 | 10 | -817.5 | 10.5 | 10 |
| -797.5 | 10.5 | 10 | -777.5 | 10.5 | 10 | -757.5 | 10.5 | 10 | -737.5 | 10.5 | 10 | -717.5 | 10.5 | 10 |
| -697.5 | 10.5 | 10 | -677.5 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1397.5 | 17.5 |
| -1340.0 | 17.5 |
| -1340.0 | 68.8 |
| -1305.0 | 68.8 |
| -1305.0 | 17.5 |
| -665.0 | 17.5 |
| -665.0 | 68.8 |
| -648.8 | 68.8 |
| -648.8 | -1.3 |
| -665.0 | -17.5 |
| -1397.5 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1377.5 | -10.5 | 10 | -1357.5 | -10.5 | 10 | -1337.5 | -10.5 | 10 | -1317.5 | -10.5 | 10 | -1297.5 | -10.5 | 10 |
| -1277.5 | -10.5 | 10 | -1257.5 | -10.5 | 10 | -1237.5 | -10.5 | 10 | -1217.5 | -10.5 | 10 | -1197.5 | -10.5 | 10 |
| -1177.5 | -10.5 | 10 | -1157.5 | -10.5 | 10 | -1137.5 | -10.5 | 10 | -1117.5 | -10.5 | 10 | -1097.5 | -10.5 | 10 |
| -1077.5 | -10.5 | 10 | -1057.5 | -10.5 | 10 | -1037.5 | -10.5 | 10 | -1017.5 | -10.5 | 10 | -997.5 | -10.5 | 10 |
| -977.5 | -10.5 | 10 | -957.5 | -10.5 | 10 | -937.5 | -10.5 | 10 | -917.5 | -10.5 | 10 | -897.5 | -10.5 | 10 |
| -877.5 | -10.5 | 10 | -857.5 | -10.5 | 10 | -837.5 | -10.5 | 10 | -817.5 | -10.5 | 10 | -797.5 | -10.5 | 10 |
| -777.5 | -10.5 | 10 | -757.5 | -10.5 | 10 | -737.5 | -10.5 | 10 | -717.5 | -10.5 | 10 | -697.5 | -10.5 | 10 |
| -677.5 | -10.5 | 10 | -1377.5 | 10.5 | 10 | -1357.5 | 10.5 | 10 | -1337.5 | 10.5 | 10 | -1317.5 | 10.5 | 10 |
| -1297.5 | 10.5 | 10 | -1277.5 | 10.5 | 10 | -1257.5 | 10.5 | 10 | -1237.5 | 10.5 | 10 | -1217.5 | 10.5 | 10 |
| -1197.5 | 10.5 | 10 | -1177.5 | 10.5 | 10 | -1157.5 | 10.5 | 10 | -1137.5 | 10.5 | 10 | -1117.5 | 10.5 | 10 |
| -1097.5 | 10.5 | 10 | -1077.5 | 10.5 | 10 | -1057.5 | 10.5 | 10 | -1037.5 | 10.5 | 10 | -1017.5 | 10.5 | 10 |
| -997.5 | 10.5 | 10 | -977.5 | 10.5 | 10 | -957.5 | 10.5 | 10 | -937.5 | 10.5 | 10 | -917.5 | 10.5 | 10 |
| -897.5 | 10.5 | 10 | -877.5 | 10.5 | 10 | -857.5 | 10.5 | 10 | -837.5 | 10.5 | 10 | -817.5 | 10.5 | 10 |
| -797.5 | 10.5 | 10 | -777.5 | 10.5 | 10 | -757.5 | 10.5 | 10 | -737.5 | 10.5 | 10 | -717.5 | 10.5 | 10 |
| -697.5 | 10.5 | 10 | -677.5 | 10.5 | 10 | | | | | | | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1397.5 | 17.5 |
| -1340.0 | 17.5 |
| -1340.0 | 80.0 |
| -1305.0 | 80.0 |
| -1305.0 | 17.5 |
| -665.0 | 17.5 |
| -665.0 | 80.0 |
| -648.8 | 80.0 |
| -648.8 | -1.3 |
| -665.0 | -17.5 |
| -1397.5 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1377.5 | -10.5 | 10 | -1357.5 | -10.5 | 10 | -1337.5 | -10.5 | 10 | -1317.5 | -10.5 | 10 | -1297.5 | -10.5 | 10 |
| -1277.5 | -10.5 | 10 | -1257.5 | -10.5 | 10 | -1237.5 | -10.5 | 10 | -1217.5 | -10.5 | 10 | -1197.5 | -10.5 | 10 |
| -1177.5 | -10.5 | 10 | -1157.5 | -10.5 | 10 | -1137.5 | -10.5 | 10 | -1117.5 | -10.5 | 10 | -1097.5 | -10.5 | 10 |
| -1077.5 | -10.5 | 10 | -1057.5 | -10.5 | 10 | -1037.5 | -10.5 | 10 | -1017.5 | -10.5 | 10 | -997.5 | -10.5 | 10 |
| -977.5 | -10.5 | 10 | -957.5 | -10.5 | 10 | -937.5 | -10.5 | 10 | -917.5 | -10.5 | 10 | -897.5 | -10.5 | 10 |
| -877.5 | -10.5 | 10 | -857.5 | -10.5 | 10 | -837.5 | -10.5 | 10 | -817.5 | -10.5 | 10 | -797.5 | -10.5 | 10 |
| -777.5 | -10.5 | 10 | -757.5 | -10.5 | 10 | -737.5 | -10.5 | 10 | -717.5 | -10.5 | 10 | -697.5 | -10.5 | 10 |
| -677.5 | -10.5 | 10 | -1377.5 | 10.5 | 10 | -1357.5 | 10.5 | 10 | -1337.5 | 10.5 | 10 | -1317.5 | 10.5 | 10 |
| -1297.5 | 10.5 | 10 | -1277.5 | 10.5 | 10 | -1257.5 | 10.5 | 10 | -1237.5 | 10.5 | 10 | -1217.5 | 10.5 | 10 |
| -1197.5 | 10.5 | 10 | -1177.5 | 10.5 | 10 | -1157.5 | 10.5 | 10 | -1137.5 | 10.5 | 10 | -1117.5 | 10.5 | 10 |
| -1097.5 | 10.5 | 10 | -1077.5 | 10.5 | 10 | -1057.5 | 10.5 | 10 | -1037.5 | 10.5 | 10 | -1017.5 | 10.5 | 10 |
| -997.5 | 10.5 | 10 | -977.5 | 10.5 | 10 | -957.5 | 10.5 | 10 | -937.5 | 10.5 | 10 | -917.5 | 10.5 | 10 |
| -897.5 | 10.5 | 10 | -877.5 | 10.5 | 10 | -857.5 | 10.5 | 10 | -837.5 | 10.5 | 10 | -817.5 | 10.5 | 10 |
| -797.5 | 10.5 | 10 | -777.5 | 10.5 | 10 | -757.5 | 10.5 | 10 | -737.5 | 10.5 | 10 | -717.5 | 10.5 | 10 |
| -697.5 | 10.5 | 10 | -677.5 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1397.5 | 17.5 |
| -1340.0 | 17.5 |
| -1340.0 | 72.5 |
| -1305.0 | 72.5 |
| -1305.0 | 17.5 |
| -665.0 | 17.5 |
| -665.0 | 72.5 |
| -648.8 | 72.5 |
| -648.8 | -1.3 |
| -665.0 | -17.5 |
| -1397.5 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1377.5 | -10.5 | 10 | -1357.5 | -10.5 | 10 | -1337.5 | -10.5 | 10 | -1317.5 | -10.5 | 10 | -1297.5 | -10.5 | 10 |
| -1277.5 | -10.5 | 10 | -1257.5 | -10.5 | 10 | -1237.5 | -10.5 | 10 | -1217.5 | -10.5 | 10 | -1197.5 | -10.5 | 10 |
| -1177.5 | -10.5 | 10 | -1157.5 | -10.5 | 10 | -1137.5 | -10.5 | 10 | -1117.5 | -10.5 | 10 | -1097.5 | -10.5 | 10 |
| -1077.5 | -10.5 | 10 | -1057.5 | -10.5 | 10 | -1037.5 | -10.5 | 10 | -1017.5 | -10.5 | 10 | -997.5 | -10.5 | 10 |
| -977.5 | -10.5 | 10 | -957.5 | -10.5 | 10 | -937.5 | -10.5 | 10 | -917.5 | -10.5 | 10 | -897.5 | -10.5 | 10 |
| -877.5 | -10.5 | 10 | -857.5 | -10.5 | 10 | -837.5 | -10.5 | 10 | -817.5 | -10.5 | 10 | -797.5 | -10.5 | 10 |
| -777.5 | -10.5 | 10 | -757.5 | -10.5 | 10 | -737.5 | -10.5 | 10 | -717.5 | -10.5 | 10 | -697.5 | -10.5 | 10 |
| -677.5 | -10.5 | 10 | -1377.5 | 10.5 | 10 | -1357.5 | 10.5 | 10 | -1337.5 | 10.5 | 10 | -1317.5 | 10.5 | 10 |
| -1297.5 | 10.5 | 10 | -1277.5 | 10.5 | 10 | -1257.5 | 10.5 | 10 | -1237.5 | 10.5 | 10 | -1217.5 | 10.5 | 10 |
| -1197.5 | 10.5 | 10 | -1177.5 | 10.5 | 10 | -1157.5 | 10.5 | 10 | -1137.5 | 10.5 | 10 | -1117.5 | 10.5 | 10 |
| -1097.5 | 10.5 | 10 | -1077.5 | 10.5 | 10 | -1057.5 | 10.5 | 10 | -1037.5 | 10.5 | 10 | -1017.5 | 10.5 | 10 |
| -997.5 | 10.5 | 10 | -977.5 | 10.5 | 10 | -957.5 | 10.5 | 10 | -937.5 | 10.5 | 10 | -917.5 | 10.5 | 10 |
| -897.5 | 10.5 | 10 | -877.5 | 10.5 | 10 | -857.5 | 10.5 | 10 | -837.5 | 10.5 | 10 | -817.5 | 10.5 | 10 |
| -797.5 | 10.5 | 10 | -777.5 | 10.5 | 10 | -757.5 | 10.5 | 10 | -737.5 | 10.5 | 10 | -717.5 | 10.5 | 10 |
| -697.5 | 10.5 | 10 | -677.5 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1397.5 | 17.5 |
| -1340.0 | 17.5 |
| -1340.0 | 38.8 |
| -1305.0 | 38.8 |
| -1305.0 | 17.5 |
| -665.0 | 17.5 |
| -665.0 | 38.8 |
| -648.8 | 38.8 |
| -648.8 | -1.3 |
| -665.0 | -17.5 |
| -1397.5 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1377.5 | -10.5 | 10 | -1357.5 | -10.5 | 10 | -1337.5 | -10.5 | 10 | -1317.5 | -10.5 | 10 | -1297.5 | -10.5 | 10 |
| -1277.5 | -10.5 | 10 | -1257.5 | -10.5 | 10 | -1237.5 | -10.5 | 10 | -1217.5 | -10.5 | 10 | -1197.5 | -10.5 | 10 |
| -1177.5 | -10.5 | 10 | -1157.5 | -10.5 | 10 | -1137.5 | -10.5 | 10 | -1117.5 | -10.5 | 10 | -1097.5 | -10.5 | 10 |
| -1077.5 | -10.5 | 10 | -1057.5 | -10.5 | 10 | -1037.5 | -10.5 | 10 | -1017.5 | -10.5 | 10 | -997.5 | -10.5 | 10 |
| -977.5 | -10.5 | 10 | -957.5 | -10.5 | 10 | -937.5 | -10.5 | 10 | -917.5 | -10.5 | 10 | -897.5 | -10.5 | 10 |
| -877.5 | -10.5 | 10 | -857.5 | -10.5 | 10 | -837.5 | -10.5 | 10 | -817.5 | -10.5 | 10 | -797.5 | -10.5 | 10 |
| -777.5 | -10.5 | 10 | -757.5 | -10.5 | 10 | -737.5 | -10.5 | 10 | -717.5 | -10.5 | 10 | -697.5 | -10.5 | 10 |
| -677.5 | -10.5 | 10 | -1377.5 | 10.5 | 10 | -1357.5 | 10.5 | 10 | -1337.5 | 10.5 | 10 | -1317.5 | 10.5 | 10 |
| -1297.5 | 10.5 | 10 | -1277.5 | 10.5 | 10 | -1257.5 | 10.5 | 10 | -1237.5 | 10.5 | 10 | -1217.5 | 10.5 | 10 |
| -1197.5 | 10.5 | 10 | -1177.5 | 10.5 | 10 | -1157.5 | 10.5 | 10 | -1137.5 | 10.5 | 10 | -1117.5 | 10.5 | 10 |
| -1097.5 | 10.5 | 10 | -1077.5 | 10.5 | 10 | -1057.5 | 10.5 | 10 | -1037.5 | 10.5 | 10 | -1017.5 | 10.5 | 10 |
| -997.5 | 10.5 | 10 | -977.5 | 10.5 | 10 | -957.5 | 10.5 | 10 | -937.5 | 10.5 | 10 | -917.5 | 10.5 | 10 |
| -897.5 | 10.5 | 10 | -877.5 | 10.5 | 10 | -857.5 | 10.5 | 10 | -837.5 | 10.5 | 10 | -817.5 | 10.5 | 10 |
| -797.5 | 10.5 | 10 | -777.5 | 10.5 | 10 | -757.5 | 10.5 | 10 | -737.5 | 10.5 | 10 | -717.5 | 10.5 | 10 |
| -697.5 | 10.5 | 10 | -677.5 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1397.5 | -17.5 |
| -1397.5 | 17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

-665.0 17.5
-665.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1377.5 | -10.5 | 10 | -1357.5 | -10.5 | 10 | -1337.5 | -10.5 | 10 | -1317.5 | -10.5 | 10 | -1297.5 | -10.5 | 10 |
| -1277.5 | -10.5 | 10 | -1257.5 | -10.5 | 10 | -1237.5 | -10.5 | 10 | -1217.5 | -10.5 | 10 | -1197.5 | -10.5 | 10 |
| -1177.5 | -10.5 | 10 | -1157.5 | -10.5 | 10 | -1137.5 | -10.5 | 10 | -1117.5 | -10.5 | 10 | -1097.5 | -10.5 | 10 |
| -1077.5 | -10.5 | 10 | -1057.5 | -10.5 | 10 | -1037.5 | -10.5 | 10 | -1017.5 | -10.5 | 10 | -997.5 | -10.5 | 10 |
| -977.5 | -10.5 | 10 | -957.5 | -10.5 | 10 | -937.5 | -10.5 | 10 | -917.5 | -10.5 | 10 | -897.5 | -10.5 | 10 |
| -877.5 | -10.5 | 10 | -857.5 | -10.5 | 10 | -837.5 | -10.5 | 10 | -817.5 | -10.5 | 10 | -797.5 | -10.5 | 10 |
| -777.5 | -10.5 | 10 | -757.5 | -10.5 | 10 | -737.5 | -10.5 | 10 | -717.5 | -10.5 | 10 | -697.5 | -10.5 | 10 |
| -677.5 | -10.5 | 10 | -1377.5 | 10.5 | 10 | -1357.5 | 10.5 | 10 | -1337.5 | 10.5 | 10 | -1317.5 | 10.5 | 10 |
| -1297.5 | 10.5 | 10 | -1277.5 | 10.5 | 10 | -1257.5 | 10.5 | 10 | -1237.5 | 10.5 | 10 | -1217.5 | 10.5 | 10 |
| -1197.5 | 10.5 | 10 | -1177.5 | 10.5 | 10 | -1157.5 | 10.5 | 10 | -1137.5 | 10.5 | 10 | -1117.5 | 10.5 | 10 |
| -1097.5 | 10.5 | 10 | -1077.5 | 10.5 | 10 | -1057.5 | 10.5 | 10 | -1037.5 | 10.5 | 10 | -1017.5 | 10.5 | 10 |
| -997.5 | 10.5 | 10 | -977.5 | 10.5 | 10 | -957.5 | 10.5 | 10 | -937.5 | 10.5 | 10 | -917.5 | 10.5 | 10 |
| -897.5 | 10.5 | 10 | -877.5 | 10.5 | 10 | -857.5 | 10.5 | 10 | -837.5 | 10.5 | 10 | -817.5 | 10.5 | 10 |
| -797.5 | 10.5 | 10 | -777.5 | 10.5 | 10 | -757.5 | 10.5 | 10 | -737.5 | 10.5 | 10 | -717.5 | 10.5 | 10 |
| -697.5 | 10.5 | 10 | -677.5 | 10.5 | 10 | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fed | ftcd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|-----|------|-----|
| 188 | 14 | 244 | 243 | 456 | 733 | 2 | 243 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|----------|----------|--------|--------|--------|----------------|
| 0 | -670601 | -2431416 | -25821 | -25821 | -25821 | 9.5981 3 SLU |
| 0 | -1075338 | -1761820 | -17842 | -16127 | -17842 | 4.1153 1 SLV |
| 68 | 281015 | -2862425 | -20195 | -20195 | -20195 | 72.1666 2 SLU |
| 68 | 399122 | -1976363 | -22985 | -16221 | -22985 | 60.0946 8 SLV |
| 135 | 640929 | -3205929 | -18977 | -18977 | -18977 | 33.1829 2 SLU |
| 135 | 474358 | -1926135 | -8705 | -11748 | -8705 | 39.4386 13 SLV |
| 165 | 797504 | -3107444 | -20053 | -20053 | -20053 | 22.6082 2 SLU |
| 165 | 695718 | -2975110 | -14012 | -12801 | -14012 | 23.4702 1 SLV |
| 300 | 733995 | -641604 | -5400 | -5400 | -5400 | 7.8759 3 SLU |
| 300 | 848808 | -661634 | -2957 | -1839 | -2957 | 6.4169 1 SLV |
| 435 | -8391 | 114728 | 1618 | 1618 | 1618 | 98.8127 3 SLU |
| 435 | -11323 | 550680 | 3179 | 2279 | 3179 | 46.3063 13 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|-----------------|
| 0 | -30120 | -1929307 | 64.0537 8 SLV |
| 68 | -22985 | -2159590 | 93.9573 8 SLV |
| 135 | -20049 | -2202708 | 109.8675 8 SLV |
| 165 | -20322 | -2173830 | 106.9716 8 SLV |
| 300 | -8185 | -2043876 | 249.7036 8 SLV |
| 435 | 3179 | -1929307 | 606.9064 13 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrcd | comb |
|-------|---------|--------|--------|-------|
| 0 | 1.00 | -9527 | 969818 | 3 SLU |
| 0 | 1.00 | -39869 | 966599 | 9 SLV |
| 68 | 1.00 | -10168 | 968652 | 3 SLU |
| 68 | 1.00 | -39768 | 966172 | 9 SLV |
| 135 | 1.00 | -9612 | 968412 | 3 SLU |
| 135 | 1.00 | -38066 | 966358 | 9 SLV |
| 165 | 1.00 | -6652 | 968629 | 3 SLU |
| 165 | 1.00 | -31398 | 966673 | 9 SLV |
| 300 | 1.00 | -6674 | 965734 | 3 SLU |
| 300 | 1.00 | -27319 | 964764 | 9 SLV |
| 435 | 1.00 | 647 | 964654 | 1 SLU |
| 435 | 1.00 | 7468 | 964654 | 8 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|------|--------|--------|--------|--------|--------|-------|
| 0 | 56.5 | 0.0034 | 0.0022 | -9527 | -25821 | 275367 | 3 SLU |
| 0 | 56.5 | 0.0034 | 0.0022 | -39869 | -9726 | 275367 | 9 SLV |
| 68 | 56.5 | 0.0055 | 0.0022 | -10168 | -19993 | 439495 | 3 SLU |
| 68 | 56.5 | 0.0055 | 0.0022 | -39768 | -7594 | 439495 | 9 SLV |
| 135 | 56.5 | 0.0055 | 0.0022 | -9612 | -18789 | 439495 | 3 SLU |
| 135 | 56.5 | 0.0055 | 0.0022 | -38066 | -8523 | 439495 | 9 SLV |
| 165 | 56.5 | 0.0055 | 0.0022 | -6652 | -19878 | 439495 | 3 SLU |
| 165 | 56.5 | 0.0055 | 0.0022 | -31398 | -10096 | 439495 | 9 SLV |
| 300 | 56.5 | 0.0055 | 0.0022 | -6674 | -5400 | 439495 | 3 SLU |
| 300 | 56.5 | 0.0055 | 0.0022 | -27319 | -550 | 439495 | 9 SLV |
| 435 | 56.5 | 0.0047 | 0.0022 | 647 | 1415 | 376695 | 1 SLU |
| 435 | 56.5 | 0.0047 | 0.0022 | 7468 | 60 | 376695 | 8 SLV |

Pannello : Pannello da (18;631) a (18;35)

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| -631.0 | -17.5 |
| -631.0 | 17.5 |
| -35.3 | 17.5 |
| -35.3 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| -617.5 | -10.5 | 10 | -597.5 | -10.5 | 10 | -577.5 | -10.5 | 10 | -557.5 | -10.5 | 10 | -537.5 | -10.5 | 10 |
| -517.5 | -10.5 | 10 | -497.5 | -10.5 | 10 | -477.5 | -10.5 | 10 | -457.5 | -10.5 | 10 | -437.5 | -10.5 | 10 |
| -417.5 | -10.5 | 10 | -397.5 | -10.5 | 10 | -377.5 | -10.5 | 10 | -357.5 | -10.5 | 10 | -337.5 | -10.5 | 10 |
| -317.5 | -10.5 | 10 | -297.5 | -10.5 | 10 | -277.5 | -10.5 | 10 | -257.5 | -10.5 | 10 | -237.5 | -10.5 | 10 |
| -217.5 | -10.5 | 10 | -197.5 | -10.5 | 10 | -177.5 | -10.5 | 10 | -157.5 | -10.5 | 10 | -137.5 | -10.5 | 10 |
| -117.5 | -10.5 | 10 | -97.5 | -10.5 | 10 | -77.5 | -10.5 | 10 | -57.5 | -10.5 | 10 | -37.5 | -10.5 | 10 |
| -617.5 | 10.5 | 10 | -597.5 | 10.5 | 10 | -577.5 | 10.5 | 10 | -557.5 | 10.5 | 10 | -537.5 | 10.5 | 10 |
| -517.5 | 10.5 | 10 | -497.5 | 10.5 | 10 | -477.5 | 10.5 | 10 | -457.5 | 10.5 | 10 | -437.5 | 10.5 | 10 |
| -417.5 | 10.5 | 10 | -397.5 | 10.5 | 10 | -377.5 | 10.5 | 10 | -357.5 | 10.5 | 10 | -337.5 | 10.5 | 10 |
| -317.5 | 10.5 | 10 | -297.5 | 10.5 | 10 | -277.5 | 10.5 | 10 | -257.5 | 10.5 | 10 | -237.5 | 10.5 | 10 |
| -217.5 | 10.5 | 10 | -197.5 | 10.5 | 10 | -177.5 | 10.5 | 10 | -157.5 | 10.5 | 10 | -137.5 | 10.5 | 10 |
| -117.5 | 10.5 | 10 | -97.5 | 10.5 | 10 | -77.5 | 10.5 | 10 | -57.5 | 10.5 | 10 | -37.5 | 10.5 | 10 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|-------|
| -644.2 | 68.8 |
| -630.0 | 68.8 |
| -630.0 | 17.5 |
| -345.0 | 17.5 |
| -345.0 | 68.8 |
| -315.0 | 68.8 |
| -315.0 | 17.5 |
| -35.0 | 17.5 |
| -35.0 | 68.8 |
| -22.1 | 68.8 |
| -22.1 | -4.4 |
| -35.3 | -17.5 |
| -631.0 | -17.5 |
| -644.2 | -3.9 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| -617.5 | -10.5 | 10 | -597.5 | -10.5 | 10 | -577.5 | -10.5 | 10 | -557.5 | -10.5 | 10 | -537.5 | -10.5 | 10 |
| -517.5 | -10.5 | 10 | -497.5 | -10.5 | 10 | -477.5 | -10.5 | 10 | -457.5 | -10.5 | 10 | -437.5 | -10.5 | 10 |
| -417.5 | -10.5 | 10 | -397.5 | -10.5 | 10 | -377.5 | -10.5 | 10 | -357.5 | -10.5 | 10 | -337.5 | -10.5 | 10 |
| -317.5 | -10.5 | 10 | -297.5 | -10.5 | 10 | -277.5 | -10.5 | 10 | -257.5 | -10.5 | 10 | -237.5 | -10.5 | 10 |
| -217.5 | -10.5 | 10 | -197.5 | -10.5 | 10 | -177.5 | -10.5 | 10 | -157.5 | -10.5 | 10 | -137.5 | -10.5 | 10 |
| -117.5 | -10.5 | 10 | -97.5 | -10.5 | 10 | -77.5 | -10.5 | 10 | -57.5 | -10.5 | 10 | -37.5 | -10.5 | 10 |
| -617.5 | 10.5 | 10 | -597.5 | 10.5 | 10 | -577.5 | 10.5 | 10 | -557.5 | 10.5 | 10 | -537.5 | 10.5 | 10 |
| -517.5 | 10.5 | 10 | -497.5 | 10.5 | 10 | -477.5 | 10.5 | 10 | -457.5 | 10.5 | 10 | -437.5 | 10.5 | 10 |
| -417.5 | 10.5 | 10 | -397.5 | 10.5 | 10 | -377.5 | 10.5 | 10 | -357.5 | 10.5 | 10 | -337.5 | 10.5 | 10 |
| -317.5 | 10.5 | 10 | -297.5 | 10.5 | 10 | -277.5 | 10.5 | 10 | -257.5 | 10.5 | 10 | -237.5 | 10.5 | 10 |
| -217.5 | 10.5 | 10 | -197.5 | 10.5 | 10 | -177.5 | 10.5 | 10 | -157.5 | 10.5 | 10 | -137.5 | 10.5 | 10 |
| -117.5 | 10.5 | 10 | -97.5 | 10.5 | 10 | -77.5 | 10.5 | 10 | -57.5 | 10.5 | 10 | -37.5 | 10.5 | 10 |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|--------|-------|
| -644.2 | 108.3 |
| -630.0 | 108.3 |
| -630.0 | 17.5 |
| -345.0 | 17.5 |
| -345.0 | 108.3 |
| -315.0 | 108.3 |
| -315.0 | 17.5 |
| -35.0 | 17.5 |
| -35.0 | 108.3 |
| -22.1 | 108.3 |
| -22.1 | -4.4 |
| -35.3 | -17.5 |
| -631.0 | -17.5 |
| -644.2 | -3.9 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| -617.5 | -10.5 | 10 | -597.5 | -10.5 | 10 | -577.5 | -10.5 | 10 | -557.5 | -10.5 | 10 | -537.5 | -10.5 | 10 |
| -517.5 | -10.5 | 10 | -497.5 | -10.5 | 10 | -477.5 | -10.5 | 10 | -457.5 | -10.5 | 10 | -437.5 | -10.5 | 10 |
| -417.5 | -10.5 | 10 | -397.5 | -10.5 | 10 | -377.5 | -10.5 | 10 | -357.5 | -10.5 | 10 | -337.5 | -10.5 | 10 |
| -317.5 | -10.5 | 10 | -297.5 | -10.5 | 10 | -277.5 | -10.5 | 10 | -257.5 | -10.5 | 10 | -237.5 | -10.5 | 10 |
| -217.5 | -10.5 | 10 | -197.5 | -10.5 | 10 | -177.5 | -10.5 | 10 | -157.5 | -10.5 | 10 | -137.5 | -10.5 | 10 |
| -117.5 | -10.5 | 10 | -97.5 | -10.5 | 10 | -77.5 | -10.5 | 10 | -57.5 | -10.5 | 10 | -37.5 | -10.5 | 10 |
| -617.5 | 10.5 | 10 | -597.5 | 10.5 | 10 | -577.5 | 10.5 | 10 | -557.5 | 10.5 | 10 | -537.5 | 10.5 | 10 |
| -517.5 | 10.5 | 10 | -497.5 | 10.5 | 10 | -477.5 | 10.5 | 10 | -457.5 | 10.5 | 10 | -437.5 | 10.5 | 10 |
| -417.5 | 10.5 | 10 | -397.5 | 10.5 | 10 | -377.5 | 10.5 | 10 | -357.5 | 10.5 | 10 | -337.5 | 10.5 | 10 |
| -317.5 | 10.5 | 10 | -297.5 | 10.5 | 10 | -277.5 | 10.5 | 10 | -257.5 | 10.5 | 10 | -237.5 | 10.5 | 10 |
| -217.5 | 10.5 | 10 | -197.5 | 10.5 | 10 | -177.5 | 10.5 | 10 | -157.5 | 10.5 | 10 | -137.5 | 10.5 | 10 |
| -117.5 | 10.5 | 10 | -97.5 | 10.5 | 10 | -77.5 | 10.5 | 10 | -57.5 | 10.5 | 10 | -37.5 | 10.5 | 10 |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|--------|-------|
| -644.2 | 100.8 |
| -630.0 | 100.8 |
| -630.0 | 17.5 |
| -35.0 | 17.5 |
| -35.0 | 100.8 |
| -22.1 | 100.8 |
| -22.1 | -4.4 |
| -35.3 | -17.5 |
| -631.0 | -17.5 |
| -644.2 | -3.9 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| -617.5 | -10.5 | 10 | -597.5 | -10.5 | 10 | -577.5 | -10.5 | 10 | -557.5 | -10.5 | 10 | -537.5 | -10.5 | 10 |
| -517.5 | -10.5 | 10 | -497.5 | -10.5 | 10 | -477.5 | -10.5 | 10 | -457.5 | -10.5 | 10 | -437.5 | -10.5 | 10 |
| -417.5 | -10.5 | 10 | -397.5 | -10.5 | 10 | -377.5 | -10.5 | 10 | -357.5 | -10.5 | 10 | -337.5 | -10.5 | 10 |
| -317.5 | -10.5 | 10 | -297.5 | -10.5 | 10 | -277.5 | -10.5 | 10 | -257.5 | -10.5 | 10 | -237.5 | -10.5 | 10 |
| -217.5 | -10.5 | 10 | -197.5 | -10.5 | 10 | -177.5 | -10.5 | 10 | -157.5 | -10.5 | 10 | -137.5 | -10.5 | 10 |
| -117.5 | -10.5 | 10 | -97.5 | -10.5 | 10 | -77.5 | -10.5 | 10 | -57.5 | -10.5 | 10 | -37.5 | -10.5 | 10 |
| -617.5 | 10.5 | 10 | -597.5 | 10.5 | 10 | -577.5 | 10.5 | 10 | -557.5 | 10.5 | 10 | -537.5 | 10.5 | 10 |
| -517.5 | 10.5 | 10 | -497.5 | 10.5 | 10 | -477.5 | 10.5 | 10 | -457.5 | 10.5 | 10 | -437.5 | 10.5 | 10 |
| -417.5 | 10.5 | 10 | -397.5 | 10.5 | 10 | -377.5 | 10.5 | 10 | -357.5 | 10.5 | 10 | -337.5 | 10.5 | 10 |
| -317.5 | 10.5 | 10 | -297.5 | 10.5 | 10 | -277.5 | 10.5 | 10 | -257.5 | 10.5 | 10 | -237.5 | 10.5 | 10 |
| -217.5 | 10.5 | 10 | -197.5 | 10.5 | 10 | -177.5 | 10.5 | 10 | -157.5 | 10.5 | 10 | -137.5 | 10.5 | 10 |
| -117.5 | 10.5 | 10 | -97.5 | 10.5 | 10 | -77.5 | 10.5 | 10 | -57.5 | 10.5 | 10 | -37.5 | 10.5 | 10 |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|--------|------|
| -644.2 | 67.0 |
| -630.0 | 67.0 |
| -630.0 | 17.5 |
| -35.0 | 17.5 |
| -35.0 | 67.0 |
| -22.1 | 67.0 |
| -22.1 | -4.4 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|------|----|--------|------|----|--------|------|----|--------|------|----|--------|------|----|
| -517.5 | 10.5 | 10 | -497.5 | 10.5 | 10 | -477.5 | 10.5 | 10 | -457.5 | 10.5 | 10 | -437.5 | 10.5 | 10 |
| -417.5 | 10.5 | 10 | -397.5 | 10.5 | 10 | -377.5 | 10.5 | 10 | -357.5 | 10.5 | 10 | -337.5 | 10.5 | 10 |
| -317.5 | 10.5 | 10 | -297.5 | 10.5 | 10 | -277.5 | 10.5 | 10 | -257.5 | 10.5 | 10 | -237.5 | 10.5 | 10 |
| -217.5 | 10.5 | 10 | -197.5 | 10.5 | 10 | -177.5 | 10.5 | 10 | -157.5 | 10.5 | 10 | -137.5 | 10.5 | 10 |
| -117.5 | 10.5 | 10 | -97.5 | 10.5 | 10 | -77.5 | 10.5 | 10 | -57.5 | 10.5 | 10 | -37.5 | 10.5 | 10 |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| | | | | | | | |
|-----|------|-----|-------|-----|-----|------|-----|
| fed | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
| 188 | 14 | 199 | 198 | 569 | 596 | 3 | 198 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|---------|----------|--------|--------|--------|-----------------|
| 0 | 377823 | -1183542 | -35758 | -35758 | -35758 | 39.6890 2 SLV |
| 0 | 365364 | -2119294 | -34809 | -25881 | -34809 | 33.8602 1 SLV |
| 68 | -46097 | -951482 | -31411 | -31411 | -31411 | 104.3895 1 SLV |
| 68 | -99509 | -1609623 | -30650 | -22961 | -30650 | 82.2120 1 SLV |
| 135 | 62893 | -697148 | -32629 | -32629 | -32629 | 123.3011 2 SLV |
| 135 | -91675 | -721825 | -32462 | -23476 | -32462 | 91.5327 1 SLV |
| 165 | 86358 | -554381 | -35315 | -35315 | -35315 | 106.8970 2 SLV |
| 165 | -55975 | -1011865 | -36874 | -26021 | -36874 | 87.2213 5 SLV |
| 300 | -77806 | -290131 | -24012 | -24012 | -24012 | 131.6538 2 SLV |
| 300 | -175119 | -655445 | -14150 | -17453 | -14150 | 59.7025 15 SLV |
| 435 | -69611 | -584304 | -13209 | -13209 | -13209 | 174.1215 2 SLV |
| 435 | -252811 | -792279 | -9510 | -9580 | -9510 | 20.7674 16 SLV |
| 455 | -52083 | -427944 | -9598 | -9598 | -9598 | 235.6658 2 SLV |
| 455 | -225373 | -684190 | -7076 | -6857 | -7076 | 20.4289 16 SLV |
| 498 | -5892 | -44500 | -4931 | -4931 | -4931 | 673.8250 2 SLV |
| 498 | -133898 | -243831 | -3523 | -3428 | -3523 | 32.6667 16 SLV |
| 540 | 3931 | 13668 | -670 | -670 | -670 | 3635.0570 2 SLV |
| 540 | 29391 | -58825 | 177 | -376 | 177 | 86.9433 4 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|-----------------|
| 0 | -34809 | -1569086 | 45.0767 1 SLV |
| 68 | -30650 | -1845941 | 60.2268 1 SLV |
| 135 | -32462 | -2015552 | 62.0904 1 SLV |
| 165 | -37742 | -1795360 | 47.5694 1 SLV |
| 300 | -24540 | -1726443 | 70.3525 5 SLV |
| 435 | -13043 | -1569086 | 120.2965 9 SLV |
| 455 | -8621 | -1569086 | 182.0086 9 SLV |
| 498 | -6447 | -1569086 | 243.3756 9 SLV |
| 540 | -1385 | -1569086 | 1133.1880 9 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrcd comb |
|-------|---------|--------|---------------|
| 0 | 1.00 | -9139 | 791695 2 SLV |
| 0 | 1.00 | -47035 | 791234 5 SLV |
| 68 | 1.00 | -8735 | 790910 2 SLV |
| 68 | 1.00 | -46055 | 790630 5 SLV |
| 135 | 1.00 | -8533 | 791069 2 SLV |
| 135 | 1.00 | -44925 | 790986 5 SLV |
| 165 | 1.00 | 13357 | 791407 3 SLV |
| 165 | 1.00 | 34414 | 787536 12 SLV |
| 300 | 1.00 | 11021 | 789210 3 SLV |
| 300 | 1.00 | 31469 | 786679 12 SLV |
| 435 | 1.00 | 4444 | 787185 2 SLV |
| 435 | 1.00 | 27467 | 785749 8 SLV |
| 455 | 1.00 | 1713 | 786390 1 SLV |
| 455 | 1.00 | 28078 | 785595 8 SLV |
| 498 | 1.00 | 1674 | 785479 1 SLV |
| 498 | 1.00 | 26230 | 784664 8 SLV |
| 540 | 1.00 | 852 | 784659 1 SLV |
| 540 | 1.00 | 24463 | 784543 8 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd comb |
|-------|------|--------|--------|--------|--------|---------------|
| 0 | 47.1 | 0.0020 | 0.0023 | -9139 | -35758 | 130206 2 SLV |
| 0 | 47.1 | 0.0020 | 0.0023 | -47035 | -33456 | 130206 5 SLV |
| 68 | 47.1 | 0.0022 | 0.0023 | -8735 | -31835 | 146491 2 SLV |
| 68 | 47.1 | 0.0022 | 0.0023 | -46055 | -30437 | 146491 5 SLV |
| 135 | 47.1 | 0.0022 | 0.0023 | -8533 | -32629 | 146491 2 SLV |
| 135 | 47.1 | 0.0022 | 0.0023 | -44925 | -32215 | 146491 5 SLV |
| 165 | 47.1 | 0.0022 | 0.0023 | 13357 | -34317 | 146491 3 SLV |
| 165 | 47.1 | 0.0022 | 0.0023 | 34414 | -14965 | 146491 12 SLV |
| 300 | 47.1 | 0.0022 | 0.0023 | 11021 | -23336 | 146491 3 SLV |
| 300 | 47.1 | 0.0022 | 0.0023 | 31469 | -10679 | 146491 12 SLV |
| 435 | 47.1 | 0.0022 | 0.0023 | 4444 | -13209 | 146491 2 SLV |
| 435 | 47.1 | 0.0022 | 0.0023 | 27467 | -6029 | 146491 8 SLV |
| 455 | 47.1 | 0.0022 | 0.0023 | 1713 | -9232 | 146491 1 SLV |
| 455 | 47.1 | 0.0022 | 0.0023 | 28078 | -5260 | 146491 8 SLV |
| 498 | 47.1 | 0.0022 | 0.0023 | 1674 | -4678 | 146491 1 SLV |
| 498 | 47.1 | 0.0022 | 0.0023 | 26230 | -603 | 146491 8 SLV |
| 540 | 47.1 | 0.0023 | 0.0023 | 852 | -578 | 150239 1 SLV |
| 540 | 47.1 | 0.0023 | 0.0023 | 24463 | 563 | 150239 8 SLV |

Pannello P2

Parete fra le coordinate in pianta (3651;1323) (0;1323)

da quota -40 a quota 455

Valori in daN, cm

C32/40: rck 400

fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|---------|-------|----|-----|-----|-----|-----|--------|--------|-------|--------|--------|----------|
| 3970 | o 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | 14.296 | 14 SLV | -1435 | 79895 | -20510 | -1142199 |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.008 | 16 SLV | 9351 | 961367 | 9428 | -969338 |
| 4263 | o 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | 16.443 | 16 SLV | -1930 | 78422 | -31740 | -1289516 |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.029 | 16 SLV | 9861 | 932299 | 10151 | -959686 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|---------|------|---------|------|
| 3970 | o 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | -5.2 | 1 ra | -1.56E03 | 4.89E04 | 150.0 | 1 ra | -1.56E03 | 4.89E04 | 0.00 | 1.9 | 0.0 | 1 ra |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -62.1 | 1 ra | 7.34E03 | 6.01E05 | 3063.1 | 1 ra | 7.34E03 | 6.01E05 | 0.00 | 30.5 | 0.0 | 1 ra |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | | | | | | | | | |
|------|---|-----|----|-----|-----|-----|-----|-------|---|----|----------|---------|--------|---|----|----------|---------|------|------|-----|---|----|
| 4263 | o | 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | -5.4 | 1 | ra | -1.76E03 | 5.06E04 | 146.2 | 1 | ra | -1.76E03 | 5.06E04 | 0.00 | 1.9 | 0.0 | 1 | ra |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -59.5 | 1 | ra | 7.86E03 | 5.76E05 | 2984.8 | 1 | ra | 7.86E03 | 5.76E05 | 0.00 | 29.4 | 0.0 | 1 | ra |

Combinazione frequente

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | |
|------|-----|-----|----|-----|-----|-----|-----|-------|---|----|----------|---------|--------|---|----|----------|---------|--------|------|-----|---|----|
| 3970 | o | 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | -5.0 | 3 | fr | -1.36E03 | 4.66E04 | 151.7 | 3 | fr | -1.36E03 | 4.66E04 | 0.00 | 1.8 | 0.0 | 1 | fr |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -57.9 | 3 | fr | 6.88E03 | 5.61E05 | 2859.1 | 3 | fr | 6.88E03 | 5.61E05 | 0.00 | 28.4 | 0.0 | 1 | fr |
| 4263 | o | 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | -5.1 | 3 | fr | -1.50E03 | 4.77E04 | 148.0 | 3 | fr | -1.50E03 | 4.77E04 | 0.00 | 1.9 | 0.0 | 1 | fr |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -55.2 | 3 | fr | 7.40E03 | 5.34E05 | 2774.6 | 3 | fr | 7.40E03 | 5.34E05 | 0.00 | 27.3 | 0.0 | 1 | fr |

Combinazione quasi permanente

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | |
|------|-----|-----|----|-----|-----|-----|-----|-------|---|----|----------|---------|--------|---|----|----------|---------|--------|------|-----|---|----|
| 3970 | o | 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | -3.5 | 1 | q. | -1.39E03 | 3.36E04 | 82.6 | 1 | q. | -1.39E03 | 3.36E04 | 0.00 | 1.2 | 0.0 | 1 | q. |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -38.6 | 1 | q. | 5.46E03 | 3.73E05 | 1956.0 | 1 | q. | 5.46E03 | 3.73E05 | 0.00 | 19.2 | 0.0 | 1 | q. |
| 4263 | o | 100 | 35 | 7.3 | 7.3 | 7.0 | 7.0 | -3.5 | 1 | q. | -1.51E03 | 3.46E04 | 80.5 | 1 | q. | -1.51E03 | 3.46E04 | 0.00 | 1.2 | 0.0 | 1 | q. |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -36.8 | 1 | q. | 6.04E03 | 3.56E05 | 1916.5 | 1 | q. | 6.04E03 | 3.56E05 | 0.00 | 18.5 | 0.0 | 1 | q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo

Verifica punto a coordinate x=2403 y=1323 z=234

| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
|-----|-----|----|------|------|-----|-----|-------|--------|-------|---------|-------|----------|-----|-------|
| v | 354 | 35 | 34.2 | 34.2 | 7.2 | 7.2 | 1.232 | 16 SLV | 29825 | 2703019 | 36751 | -3330748 | 949 | 49830 |

Combinazione rara

Verifica punto a coordinate x=2403 y=1323 z=234

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | |
|-----|-----|----|------|------|-----|-----|-------|---|----|---------|---------|--------|---|----|---------|---------|--------|------|-----|---|----|
| v | 354 | 35 | 34.2 | 34.2 | 7.2 | 7.2 | -53.7 | 1 | ra | 1.88E04 | 1.66E06 | 2428.1 | 1 | ra | 1.88E04 | 1.66E06 | 0.00 | 24.9 | 0.0 | 1 | ra |

Combinazione frequente

Verifica punto a coordinate x=2403 y=1323 z=234

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | |
|-----|-----|----|------|------|-----|-----|-------|---|----|---------|---------|--------|---|----|---------|---------|--------|------|-----|---|----|
| v | 354 | 35 | 34.2 | 34.2 | 7.2 | 7.2 | -50.8 | 3 | fr | 1.86E04 | 1.56E06 | 2308.0 | 3 | fr | 1.86E04 | 1.56E06 | 0.00 | 23.6 | 0.0 | 3 | fr |

Combinazione quasi permanente

Verifica punto a coordinate x=2403 y=1323 z=234

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | |
|-----|-----|----|------|------|-----|-----|-------|---|----|---------|---------|--------|---|----|---------|---------|--------|------|-----|---|----|
| v | 354 | 35 | 34.2 | 34.2 | 7.2 | 7.2 | -35.2 | 1 | q. | 1.58E04 | 1.05E06 | 1622.4 | 1 | q. | 1.58E04 | 1.05E06 | 0.00 | 16.4 | 0.0 | 1 | q. |

Verifica dei pannelli

Pannello : Pannello da Filo 25 a Filo 4

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|---------|-------|
| -3650.7 | -17.5 |
| -3650.7 | 17.5 |
| 0.0 | 17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -3645.2 | -10.5 | 10 | -3625.2 | -10.5 | 10 | -3605.2 | -10.5 | 10 | -3585.2 | -10.5 | 10 | -3565.2 | -10.5 | 10 |
| -3545.2 | -10.5 | 10 | -3525.2 | -10.5 | 10 | -3505.2 | -10.5 | 10 | -3485.2 | -10.5 | 10 | -3465.2 | -10.5 | 10 |
| -3445.2 | -10.5 | 10 | -3425.2 | -10.5 | 10 | -3405.2 | -10.5 | 10 | -3385.2 | -10.5 | 10 | -3365.2 | -10.5 | 10 |
| -3345.2 | -10.5 | 10 | -3325.2 | -10.5 | 10 | -3305.2 | -10.5 | 10 | -3285.2 | -10.5 | 10 | -3265.2 | -10.5 | 10 |
| -3245.2 | -10.5 | 10 | -3225.2 | -10.5 | 10 | -3205.2 | -10.5 | 10 | -3185.2 | -10.5 | 10 | -3165.2 | -10.5 | 10 |
| -3145.2 | -10.5 | 10 | -3125.2 | -10.5 | 10 | -3105.2 | -10.5 | 10 | -3085.2 | -10.5 | 10 | -3065.2 | -10.5 | 10 |
| -3045.2 | -10.5 | 10 | -3025.2 | -10.5 | 10 | -3005.2 | -10.5 | 10 | -2985.2 | -10.5 | 10 | -2965.2 | -10.5 | 10 |
| -2945.2 | -10.5 | 10 | -2925.2 | -10.5 | 10 | -2905.2 | -10.5 | 10 | -2885.2 | -10.5 | 10 | -2865.2 | -10.5 | 10 |
| -2845.2 | -10.5 | 10 | -2825.2 | -10.5 | 10 | -2805.2 | -10.5 | 10 | -2785.2 | -10.5 | 10 | -2765.2 | -10.5 | 10 |
| -2745.2 | -10.5 | 10 | -2725.2 | -10.5 | 10 | -2705.2 | -10.5 | 10 | -2685.2 | -10.5 | 10 | -2665.2 | -10.5 | 10 |
| -2645.2 | -10.5 | 10 | -2625.2 | -10.5 | 10 | -2605.2 | -10.5 | 10 | -2585.2 | -10.5 | 10 | -2565.2 | -10.5 | 10 |
| -2545.2 | -10.5 | 10 | -2525.2 | -10.5 | 10 | -2505.2 | -10.5 | 10 | -2485.2 | -10.5 | 10 | -2465.2 | -10.5 | 10 |
| -2445.2 | -10.5 | 10 | -2425.2 | -10.5 | 10 | -2405.2 | -10.5 | 10 | -2385.2 | -10.5 | 10 | -2365.2 | -10.5 | 10 |
| -2345.2 | -10.5 | 10 | -2325.2 | -10.5 | 10 | -2305.2 | -10.5 | 10 | -2285.2 | -10.5 | 10 | -2265.2 | -10.5 | 10 |
| -2245.2 | -10.5 | 10 | -2225.2 | -10.5 | 10 | -2205.2 | -10.5 | 10 | -2185.2 | -10.5 | 10 | -2165.2 | -10.5 | 10 |
| -2145.2 | -10.5 | 10 | -2125.2 | -10.5 | 10 | -2105.2 | -10.5 | 10 | -2085.2 | -10.5 | 10 | -2065.2 | -10.5 | 10 |
| -2045.2 | -10.5 | 10 | -2025.2 | -10.5 | 10 | -2005.2 | -10.5 | 10 | -1985.2 | -10.5 | 10 | -1965.2 | -10.5 | 10 |
| -1945.2 | -10.5 | 10 | -1925.2 | -10.5 | 10 | -1905.2 | -10.5 | 10 | -1885.2 | -10.5 | 10 | -1865.2 | -10.5 | 10 |
| -1845.2 | -10.5 | 10 | -1825.2 | -10.5 | 10 | -1805.2 | -10.5 | 10 | -1785.2 | -10.5 | 10 | -1765.2 | -10.5 | 10 |
| -1745.2 | -10.5 | 10 | -1725.2 | -10.5 | 10 | -1705.2 | -10.5 | 10 | -1685.2 | -10.5 | 10 | -1665.2 | -10.5 | 10 |
| -1645.2 | -10.5 | 10 | -1625.2 | -10.5 | 10 | -1605.2 | -10.5 | 10 | -1585.2 | -10.5 | 10 | -1565.2 | -10.5 | 10 |
| -1545.2 | -10.5 | 10 | -1525.2 | -10.5 | 10 | -1505.2 | -10.5 | 10 | -1485.2 | -10.5 | 10 | -1465.2 | -10.5 | 10 |
| -1445.2 | -10.5 | 10 | -1425.2 | -10.5 | 10 | -1405.2 | -10.5 | 10 | -1385.2 | -10.5 | 10 | -1365.2 | -10.5 | 10 |
| -1345.2 | -10.5 | 10 | -1325.2 | -10.5 | 10 | -1305.2 | -10.5 | 10 | -1285.2 | -10.5 | 10 | -1265.2 | -10.5 | 10 |
| -1245.2 | -10.5 | 10 | -1225.2 | -10.5 | 10 | -1205.2 | -10.5 | 10 | -1185.2 | -10.5 | 10 | -1165.2 | -10.5 | 10 |
| -1145.2 | -10.5 | 10 | -1125.2 | -10.5 | 10 | -1105.2 | -10.5 | 10 | -1085.2 | -10.5 | 10 | -1065.2 | -10.5 | 10 |
| -1045.2 | -10.5 | 10 | -1025.2 | -10.5 | 10 | -1005.2 | -10.5 | 10 | -985.2 | -10.5 | 10 | -965.2 | -10.5 | 10 |
| -945.2 | -10.5 | 10 | -925.2 | -10.5 | 10 | -905.2 | -10.5 | 10 | -885.2 | -10.5 | 10 | -865.2 | -10.5 | 10 |
| -845.2 | -10.5 | 10 | -825.2 | -10.5 | 10 | -805.2 | -10.5 | 10 | -785.2 | -10.5 | 10 | -765.2 | -10.5 | 10 |
| -745.2 | -10.5 | 10 | -725.2 | -10.5 | 10 | -705.2 | -10.5 | 10 | -685.2 | -10.5 | 10 | -665.2 | -10.5 | 10 |
| -645.2 | -10.5 | 10 | -625.2 | -10.5 | 10 | -605.2 | -10.5 | 10 | -585.2 | -10.5 | 10 | -565.2 | -10.5 | 10 |
| -545.2 | -10.5 | 10 | -525.2 | -10.5 | 10 | -505.2 | -10.5 | 10 | -485.2 | -10.5 | 10 | -465.2 | -10.5 | 10 |
| -445.2 | -10.5 | 10 | -425.2 | -10.5 | 10 | -405.2 | -10.5 | 10 | -385.2 | -10.5 | 10 | -365.2 | -10.5 | 10 |
| -345.2 | -10.5 | 10 | -325.2 | -10.5 | 10 | -305.2 | -10.5 | 10 | -285.2 | -10.5 | 10 | -265.2 | -10.5 | 10 |
| -245.2 | -10.5 | 10 | -225.2 | -10.5 | 10 | -205.2 | -10.5 | 10 | -185.2 | -10.5 | 10 | -165.2 | -10.5 | 10 |
| -145.2 | -10.5 | 10 | -125.2 | -10.5 | 10 | -105.2 | -10.5 | 10 | -85.2 | -10.5 | 10 | -65.2 | -10.5 | 10 |
| -45.2 | -10.5 | 10 | -25.2 | -10.5 | 10 | -3645.2 | 10.5 | 10 | -3625.2 | 10.5 | 10 | -3605.2 | 10.5 | 10 |
| -3585.2 | 10.5 | 10 | -3565.2 | 10.5 | 10 | -3545.2 | 10.5 | 10 | -3525.2 | 10.5 | 10 | -3505.2 | 10.5 | 10 |
| -3485.2 | 10.5 | 10 | -3465.2 | 10.5 | 10 | -3445.2 | 10.5 | 10 | -3425.2 | 10.5 | 10 | -3405.2 | 10.5 | 10 |
| -3385.2 | 10.5 | 10 | -3365.2 | 10.5 | 10 | -3345.2 | 10.5 | 10 | -3325.2 | 10.5 | 10 | -3305.2 | 10.5 | 10 |
| -3285.2 | 10.5 | 10 | -3265.2 | 10.5 | 10 | -3245.2 | 10.5 | 10 | -3225.2 | 10.5 | 10 | -3205.2 | 10.5 | 10 |
| -3185.2 | 10.5 | 10 | -3165.2 | 10.5 | 10 | -3145.2 | 10.5 | 10 | -3125.2 | 10.5 | 10 | -3105.2 | 10.5 | 10 |
| -3085.2 | 10.5 | 10 | -3065.2 | 10.5 | 10 | -3045.2 | 10.5 | 10 | -3025.2 | 10.5 | 10 | -3005.2 | 10.5 | 10 |
| -2985.2 | 10.5 | 10 | -2965.2 | 10.5 | 10 | -2945.2 | 10.5 | 10 | -2925.2 | 10.5 | 10 | -2905.2 | 10.5 | 10 |
| -2885.2 | 10.5 | 10 | -2865.2 | 10.5 | 10 | -2845.2 | 10.5 | 10 | -2825.2 | 10.5 | 10 | -2805.2 | 10.5 | 10 |
| -2785.2 | 10.5 | 10 | -2765.2 | 10.5 | 10 | -2745.2 | 10.5 | 10 | -2725.2 | 10.5 | 10 | -2705.2 | 10.5 | 10 |
| -2685.2 | 10.5 | 10 | -2665.2 | 10.5 | 10 | -2645.2 | 10.5 | 10 | -2625.2 | 10.5 | 10 | -2605.2 | 10.5 | 10 |
| -2585.2 | 10.5 | 10 | -2565.2 | 10.5 | 10 | -2545.2 | 10.5 | 10 | -2525.2 | 10.5 | 10 | -2505.2 | 10.5 | 10 |
| -2485.2 | 10.5 | 10 | -2465.2 | 10.5 | 10 | -2445.2 | 10.5 | 10 | -2425.2 | 10.5 | 10 | -2405.2 | 10.5 | 10 |
| -2385.2 | 10.5 | 10 | -2365.2 | 10.5 | 10 | -2345.2 | 10.5 | 10 | -2325.2 | 10.5 | 10 | -2305.2 | 10.5 | 10 |
| -2285.2 | 10.5 | 10 | -2265.2 | 10.5 | 10 | -2245.2 | 10.5 | 10 | -2225.2 | 10.5 | 1 | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -2085.2 | 10.5 | 10 | -2065.2 | 10.5 | 10 | -2045.2 | 10.5 | 10 | -2025.2 | 10.5 | 10 | -2005.2 | 10.5 | 10 |
| -1985.2 | 10.5 | 10 | -1965.2 | 10.5 | 10 | -1945.2 | 10.5 | 10 | -1925.2 | 10.5 | 10 | -1905.2 | 10.5 | 10 |
| -1885.2 | 10.5 | 10 | -1865.2 | 10.5 | 10 | -1845.2 | 10.5 | 10 | -1825.2 | 10.5 | 10 | -1805.2 | 10.5 | 10 |
| -1785.2 | 10.5 | 10 | -1765.2 | 10.5 | 10 | -1745.2 | 10.5 | 10 | -1725.2 | 10.5 | 10 | -1705.2 | 10.5 | 10 |
| -1685.2 | 10.5 | 10 | -1665.2 | 10.5 | 10 | -1645.2 | 10.5 | 10 | -1625.2 | 10.5 | 10 | -1605.2 | 10.5 | 10 |
| -1585.2 | 10.5 | 10 | -1565.2 | 10.5 | 10 | -1545.2 | 10.5 | 10 | -1525.2 | 10.5 | 10 | -1505.2 | 10.5 | 10 |
| -1485.2 | 10.5 | 10 | -1465.2 | 10.5 | 10 | -1445.2 | 10.5 | 10 | -1425.2 | 10.5 | 10 | -1405.2 | 10.5 | 10 |
| -1385.2 | 10.5 | 10 | -1365.2 | 10.5 | 10 | -1345.2 | 10.5 | 10 | -1325.2 | 10.5 | 10 | -1305.2 | 10.5 | 10 |
| -1285.2 | 10.5 | 10 | -1265.2 | 10.5 | 10 | -1245.2 | 10.5 | 10 | -1225.2 | 10.5 | 10 | -1205.2 | 10.5 | 10 |
| -1185.2 | 10.5 | 10 | -1165.2 | 10.5 | 10 | -1145.2 | 10.5 | 10 | -1125.2 | 10.5 | 10 | -1105.2 | 10.5 | 10 |
| -1085.2 | 10.5 | 10 | -1065.2 | 10.5 | 10 | -1045.2 | 10.5 | 10 | -1025.2 | 10.5 | 10 | -1005.2 | 10.5 | 10 |
| -985.2 | 10.5 | 10 | -965.2 | 10.5 | 10 | -945.2 | 10.5 | 10 | -925.2 | 10.5 | 10 | -905.2 | 10.5 | 10 |
| -885.2 | 10.5 | 10 | -865.2 | 10.5 | 10 | -845.2 | 10.5 | 10 | -825.2 | 10.5 | 10 | -805.2 | 10.5 | 10 |
| -785.2 | 10.5 | 10 | -765.2 | 10.5 | 10 | -745.2 | 10.5 | 10 | -725.2 | 10.5 | 10 | -705.2 | 10.5 | 10 |
| -685.2 | 10.5 | 10 | -665.2 | 10.5 | 10 | -645.2 | 10.5 | 10 | -625.2 | 10.5 | 10 | -605.2 | 10.5 | 10 |
| -585.2 | 10.5 | 10 | -565.2 | 10.5 | 10 | -545.2 | 10.5 | 10 | -525.2 | 10.5 | 10 | -505.2 | 10.5 | 10 |
| -485.2 | 10.5 | 10 | -465.2 | 10.5 | 10 | -445.2 | 10.5 | 10 | -425.2 | 10.5 | 10 | -405.2 | 10.5 | 10 |
| -385.2 | 10.5 | 10 | -365.2 | 10.5 | 10 | -345.2 | 10.5 | 10 | -325.2 | 10.5 | 10 | -305.2 | 10.5 | 10 |
| -285.2 | 10.5 | 10 | -265.2 | 10.5 | 10 | -245.2 | 10.5 | 10 | -225.2 | 10.5 | 10 | -205.2 | 10.5 | 10 |
| -185.2 | 10.5 | 10 | -165.2 | 10.5 | 10 | -145.2 | 10.5 | 10 | -125.2 | 10.5 | 10 | -105.2 | 10.5 | 10 |
| -85.2 | 10.5 | 10 | -65.2 | 10.5 | 10 | -45.2 | 10.5 | 10 | -25.2 | 10.5 | 10 | -3444.9 | -10.4 | 12 |
| -3444.9 | 10.4 | 12 | -3424.9 | -10.4 | 12 | -3424.9 | 10.4 | 12 | -3404.9 | -10.4 | 12 | -3404.9 | 10.4 | 12 |
| -3384.9 | -10.4 | 12 | -3384.9 | 10.4 | 12 | -3364.9 | -10.4 | 12 | -3364.9 | 10.4 | 12 | -3344.9 | -10.4 | 12 |
| -3344.9 | 10.4 | 12 | -3324.9 | -10.4 | 12 | -3324.9 | 10.4 | 12 | -3304.9 | -10.4 | 12 | -3304.9 | 10.4 | 12 |
| -3284.9 | -10.4 | 12 | -3284.9 | 10.4 | 12 | -3264.9 | -10.4 | 12 | -3264.9 | 10.4 | 12 | -3244.9 | -10.4 | 12 |
| -3244.9 | 10.4 | 12 | -3224.9 | -10.4 | 12 | -3224.9 | 10.4 | 12 | -3204.9 | -10.4 | 12 | -3204.9 | 10.4 | 12 |
| -3184.9 | -10.4 | 12 | -3184.9 | 10.4 | 12 | -3164.9 | -10.4 | 12 | -3164.9 | 10.4 | 12 | -3144.9 | -10.4 | 12 |
| -3144.9 | 10.4 | 12 | -3124.9 | -10.4 | 12 | -3124.9 | 10.4 | 12 | -3104.9 | -10.4 | 12 | -3104.9 | 10.4 | 12 |
| -3084.9 | -10.4 | 12 | -3084.9 | 10.4 | 12 | -3064.9 | -10.4 | 12 | -3064.9 | 10.4 | 12 | -3044.9 | -10.4 | 12 |
| -3044.9 | 10.4 | 12 | -3024.9 | -10.4 | 12 | -3024.9 | 10.4 | 12 | -3004.9 | -10.4 | 12 | -3004.9 | 10.4 | 12 |
| -2984.9 | -10.4 | 12 | -2984.9 | 10.4 | 12 | -2964.9 | -10.4 | 12 | -2964.9 | 10.4 | 12 | -2944.9 | -10.4 | 12 |
| -2944.9 | 10.4 | 12 | -2924.9 | -10.4 | 12 | -2924.9 | 10.4 | 12 | -2904.9 | -10.4 | 12 | -2904.9 | 10.4 | 12 |
| -2884.9 | -10.4 | 12 | -2884.9 | 10.4 | 12 | -2864.9 | -10.4 | 12 | -2864.9 | 10.4 | 12 | -2844.9 | -10.4 | 12 |
| -2844.9 | 10.4 | 12 | -2824.9 | -10.4 | 12 | -2824.9 | 10.4 | 12 | -2804.9 | -10.4 | 12 | -2804.9 | 10.4 | 12 |
| -2784.9 | -10.4 | 12 | -2784.9 | 10.4 | 12 | -2764.9 | -10.4 | 12 | -2764.9 | 10.4 | 12 | -2744.9 | -10.4 | 12 |
| -2744.9 | 10.4 | 12 | -2724.9 | -10.4 | 12 | -2724.9 | 10.4 | 12 | -2704.9 | -10.4 | 12 | -2704.9 | 10.4 | 12 |
| -2684.9 | -10.4 | 12 | -2684.9 | 10.4 | 12 | -2664.9 | -10.4 | 12 | -2664.9 | 10.4 | 12 | -2644.9 | -10.4 | 12 |
| -2644.9 | 10.4 | 12 | -2624.9 | -10.4 | 12 | -2624.9 | 10.4 | 12 | -2604.9 | -10.4 | 12 | -2604.9 | 10.4 | 12 |
| -2584.9 | -10.4 | 12 | -2584.9 | 10.4 | 12 | -2564.9 | -10.4 | 12 | -2564.9 | 10.4 | 12 | -2544.9 | -10.4 | 12 |
| -2544.9 | 10.4 | 12 | -2524.9 | -10.4 | 12 | -2524.9 | 10.4 | 12 | -2504.9 | -10.4 | 12 | -2504.9 | 10.4 | 12 |
| -2484.9 | -10.4 | 12 | -2484.9 | 10.4 | 12 | -2464.9 | -10.4 | 12 | -2464.9 | 10.4 | 12 | -2444.9 | -10.4 | 12 |
| -2444.9 | 10.4 | 12 | -2424.9 | -10.4 | 12 | -2424.9 | 10.4 | 12 | -2404.9 | -10.4 | 12 | -2404.9 | 10.4 | 12 |
| -2401.9 | -10.4 | 12 | -2401.9 | 10.4 | 12 | -2381.9 | -10.4 | 12 | -2381.9 | 10.4 | 12 | -2361.9 | -10.4 | 12 |
| -2361.9 | 10.4 | 12 | -2341.9 | -10.4 | 12 | -2341.9 | 10.4 | 12 | -2321.9 | -10.4 | 12 | -2321.9 | 10.4 | 12 |
| -2301.9 | -10.4 | 12 | -2301.9 | 10.4 | 12 | -2281.9 | -10.4 | 12 | -2281.9 | 10.4 | 12 | -2261.9 | -10.4 | 12 |
| -2261.9 | 10.4 | 12 | -2241.9 | -10.4 | 12 | -2241.9 | 10.4 | 12 | -2221.9 | -10.4 | 12 | -2221.9 | 10.4 | 12 |
| -2201.9 | -10.4 | 12 | -2201.9 | 10.4 | 12 | -2181.9 | -10.4 | 12 | -2181.9 | 10.4 | 12 | -2161.9 | -10.4 | 12 |
| -2161.9 | 10.4 | 12 | -2141.9 | -10.4 | 12 | -2141.9 | 10.4 | 12 | -2121.9 | -10.4 | 12 | -2121.9 | 10.4 | 12 |
| -2101.9 | -10.4 | 12 | -2101.9 | 10.4 | 12 | -2081.9 | -10.4 | 12 | -2081.9 | 10.4 | 12 | -2061.9 | -10.4 | 12 |
| -2061.9 | 10.4 | 12 | -2041.9 | -10.4 | 12 | -2041.9 | 10.4 | 12 | -2021.9 | -10.4 | 12 | -2021.9 | 10.4 | 12 |
| -2001.9 | -10.4 | 12 | -2001.9 | 10.4 | 12 | -1981.9 | -10.4 | 12 | -1981.9 | 10.4 | 12 | -1961.9 | -10.4 | 12 |
| -1961.9 | 10.4 | 12 | -1941.9 | -10.4 | 12 | -1941.9 | 10.4 | 12 | -1921.9 | -10.4 | 12 | -1921.9 | 10.4 | 12 |
| -1901.9 | -10.4 | 12 | -1901.9 | 10.4 | 12 | -1881.9 | -10.4 | 12 | -1881.9 | 10.4 | 12 | -1861.9 | -10.4 | 12 |
| -1861.9 | 10.4 | 12 | -1841.9 | -10.4 | 12 | -1841.9 | 10.4 | 12 | -1821.9 | -10.4 | 12 | -1821.9 | 10.4 | 12 |
| -1801.9 | -10.4 | 12 | -1801.9 | 10.4 | 12 | -1781.9 | -10.4 | 12 | -1781.9 | 10.4 | 12 | -1761.9 | -10.4 | 12 |
| -1761.9 | 10.4 | 12 | -1741.9 | -10.4 | 12 | -1741.9 | 10.4 | 12 | -1721.9 | -10.4 | 12 | -1721.9 | 10.4 | 12 |
| -1701.9 | -10.4 | 12 | -1701.9 | 10.4 | 12 | -1681.9 | -10.4 | 12 | -1681.9 | 10.4 | 12 | -1661.9 | -10.4 | 12 |
| -1661.9 | 10.4 | 12 | -1641.9 | -10.4 | 12 | -1641.9 | 10.4 | 12 | -1621.9 | -10.4 | 12 | -1621.9 | 10.4 | 12 |
| -1601.9 | -10.4 | 12 | -1601.9 | 10.4 | 12 | -1581.9 | -10.4 | 12 | -1581.9 | 10.4 | 12 | -1561.9 | -10.4 | 12 |
| -1561.9 | 10.4 | 12 | -1541.9 | -10.4 | 12 | -1541.9 | 10.4 | 12 | -1521.9 | -10.4 | 12 | -1521.9 | 10.4 | 12 |
| -1501.9 | -10.4 | 12 | -1501.9 | 10.4 | 12 | -1481.9 | -10.4 | 12 | -1481.9 | 10.4 | 12 | -1461.9 | -10.4 | 12 |
| -1461.9 | 10.4 | 12 | -1441.9 | -10.4 | 12 | -1441.9 | 10.4 | 12 | -1421.9 | -10.4 | 12 | -1421.9 | 10.4 | 12 |
| -1401.9 | -10.4 | 12 | -1401.9 | 10.4 | 12 | -1381.9 | -10.4 | 12 | -1381.9 | 10.4 | 12 | -1361.9 | -10.4 | 12 |
| -1361.9 | 10.4 | 12 | | | | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|---------|-------|
| -3650.7 | -17.5 |
| -3650.7 | 17.5 |
| 0.0 | 17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -3645.2 | -10.5 | 10 | -3625.2 | -10.5 | 10 | -3605.2 | -10.5 | 10 | -3585.2 | -10.5 | 10 | -3565.2 | -10.5 | 10 |
| -3545.2 | -10.5 | 10 | -3525.2 | -10.5 | 10 | -3505.2 | -10.5 | 10 | -3485.2 | -10.5 | 10 | -3465.2 | -10.5 | 10 |
| -3445.2 | -10.5 | 10 | -3425.2 | -10.5 | 10 | -3405.2 | -10.5 | 10 | -3385.2 | -10.5 | 10 | -3365.2 | -10.5 | 10 |
| -3345.2 | -10.5 | 10 | -3325.2 | -10.5 | 10 | -3305.2 | -10.5 | 10 | -3285.2 | -10.5 | 10 | -3265.2 | -10.5 | 10 |
| -3245.2 | -10.5 | 10 | -3225.2 | -10.5 | 10 | -3205.2 | -10.5 | 10 | -3185.2 | -10.5 | 10 | -3165.2 | -10.5 | 10 |
| -3145.2 | -10.5 | 10 | -3125.2 | -10.5 | 10 | -3105.2 | -10.5 | 10 | -3085.2 | -10.5 | 10 | -3065.2 | -10.5 | 10 |
| -3045.2 | -10.5 | 10 | -3025.2 | -10.5 | 10 | -3005.2 | -10.5 | 10 | -2985.2 | -10.5 | 10 | -2965.2 | -10.5 | 10 |
| -2945.2 | -10.5 | 10 | -2925.2 | -10.5 | 10 | -2905.2 | -10.5 | 10 | -2885.2 | -10.5 | 10 | -2865.2 | -10.5 | 10 |
| -2845.2 | -10.5 | 10 | -2825.2 | -10.5 | 10 | -2805.2 | -10.5 | 10 | -2785.2 | -10.5 | 10 | -2765.2 | -10.5 | 10 |
| -2745.2 | -10.5 | 10 | -2725.2 | -10.5 | 10 | -2705.2 | -10.5 | 10 | -2685.2 | -10.5 | 10 | -2665.2 | -10.5 | 10 |
| -2645.2 | -10.5 | 10 | -2625.2 | -10.5 | 10 | -2605.2 | -10.5 | 10 | -2585.2 | -10.5 | 10 | -2565.2 | -10.5 | 10 |
| -2545.2 | -10.5 | 10 | -2525.2 | -10.5 | 10 | -2505.2 | -10.5 | 10 | -2485.2 | -10.5 | 10 | -2465.2 | -10.5 | 10 |
| -2445.2 | -10.5 | 10 | -2425.2 | -10.5 | 10 | -2405.2 | -10.5 | 10 | -2385.2 | -10.5 | 10 | -2365.2 | -10.5 | 10 |
| -2345.2 | -10.5 | 10 | -2325.2 | -10.5 | 10 | -2305.2 | -10.5 | 10 | -2285.2 | -10.5 | 10 | -2265.2 | -10.5 | 10 |
| -2245.2 | -10.5 | 10 | -2225.2 | -10.5 | 10 | -2205.2 | -10.5 | 10 | -2185.2 | -10.5 | 10 | -2165.2 | -10.5 | 10 |
| -2145.2 | -10.5 | 10 | -2125.2 | -10.5 | 10 | -2105.2 | -10.5 | 10 | -2085.2 | -10.5 | 10 | -2065.2 | -10.5 | 10 |
| -2045.2 | -10.5 | 10 | -2025.2 | -10.5 | 10 | -2005.2 | -10.5 | 10 | -1985.2 | -10.5 | 10 | -1965.2 | -10.5 | 10 |
| -1945.2 | -10.5 | 10 | -1925.2 | -10.5 | 10 | -1905.2 | -10.5 | 10 | -1885.2 | -10.5 | 10 | -1865.2 | -10.5 | 10 |
| -1845.2 | -10.5 | 10 | -1825.2 | -10.5 | 10 | -1805.2 | -10.5 | 10 | -1785.2 | -10.5 | 10 | -1765.2 | -10.5 | 10 |
| -1745.2 | -10.5 | 10 | -1725.2 | -10.5 | 10 | -1705.2 | -10.5 | 10 | -1685.2 | -10.5 | 10 | -1665.2 | -10.5 | 10 |
| -1645.2 | -10.5 | 10 | -1625.2 | -10.5 | 10 | -1605.2 | -10.5 | 10 | -1585.2 | -10.5 | 10 | -1565.2 | -10.5 | 10 |
| -1545.2 | -10.5 | 10 | -1525.2 | | | | | | | | | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -645.2 | -10.5 | 10 | -625.2 | -10.5 | 10 | -605.2 | -10.5 | 10 | -585.2 | -10.5 | 10 | -565.2 | -10.5 | 10 |
| -545.2 | -10.5 | 10 | -525.2 | -10.5 | 10 | -505.2 | -10.5 | 10 | -485.2 | -10.5 | 10 | -465.2 | -10.5 | 10 |
| -445.2 | -10.5 | 10 | -425.2 | -10.5 | 10 | -405.2 | -10.5 | 10 | -385.2 | -10.5 | 10 | -365.2 | -10.5 | 10 |
| -345.2 | -10.5 | 10 | -325.2 | -10.5 | 10 | -305.2 | -10.5 | 10 | -285.2 | -10.5 | 10 | -265.2 | -10.5 | 10 |
| -245.2 | -10.5 | 10 | -225.2 | -10.5 | 10 | -205.2 | -10.5 | 10 | -185.2 | -10.5 | 10 | -165.2 | -10.5 | 10 |
| -145.2 | -10.5 | 10 | -125.2 | -10.5 | 10 | -105.2 | -10.5 | 10 | -85.2 | -10.5 | 10 | -65.2 | -10.5 | 10 |
| -45.2 | -10.5 | 10 | -25.2 | -10.5 | 10 | -3645.2 | 10.5 | 10 | -3625.2 | 10.5 | 10 | -3605.2 | 10.5 | 10 |
| -3585.2 | 10.5 | 10 | -3565.2 | 10.5 | 10 | -3545.2 | 10.5 | 10 | -3525.2 | 10.5 | 10 | -3505.2 | 10.5 | 10 |
| -3485.2 | 10.5 | 10 | -3465.2 | 10.5 | 10 | -3445.2 | 10.5 | 10 | -3425.2 | 10.5 | 10 | -3405.2 | 10.5 | 10 |
| -3385.2 | 10.5 | 10 | -3365.2 | 10.5 | 10 | -3345.2 | 10.5 | 10 | -3325.2 | 10.5 | 10 | -3305.2 | 10.5 | 10 |
| -3285.2 | 10.5 | 10 | -3265.2 | 10.5 | 10 | -3245.2 | 10.5 | 10 | -3225.2 | 10.5 | 10 | -3205.2 | 10.5 | 10 |
| -3185.2 | 10.5 | 10 | -3165.2 | 10.5 | 10 | -3145.2 | 10.5 | 10 | -3125.2 | 10.5 | 10 | -3105.2 | 10.5 | 10 |
| -3085.2 | 10.5 | 10 | -3065.2 | 10.5 | 10 | -3045.2 | 10.5 | 10 | -3025.2 | 10.5 | 10 | -3005.2 | 10.5 | 10 |
| -2985.2 | 10.5 | 10 | -2965.2 | 10.5 | 10 | -2945.2 | 10.5 | 10 | -2925.2 | 10.5 | 10 | -2905.2 | 10.5 | 10 |
| -2885.2 | 10.5 | 10 | -2865.2 | 10.5 | 10 | -2845.2 | 10.5 | 10 | -2825.2 | 10.5 | 10 | -2805.2 | 10.5 | 10 |
| -2785.2 | 10.5 | 10 | -2765.2 | 10.5 | 10 | -2745.2 | 10.5 | 10 | -2725.2 | 10.5 | 10 | -2705.2 | 10.5 | 10 |
| -2685.2 | 10.5 | 10 | -2665.2 | 10.5 | 10 | -2645.2 | 10.5 | 10 | -2625.2 | 10.5 | 10 | -2605.2 | 10.5 | 10 |
| -2585.2 | 10.5 | 10 | -2565.2 | 10.5 | 10 | -2545.2 | 10.5 | 10 | -2525.2 | 10.5 | 10 | -2505.2 | 10.5 | 10 |
| -2485.2 | 10.5 | 10 | -2465.2 | 10.5 | 10 | -2445.2 | 10.5 | 10 | -2425.2 | 10.5 | 10 | -2405.2 | 10.5 | 10 |
| -2385.2 | 10.5 | 10 | -2365.2 | 10.5 | 10 | -2345.2 | 10.5 | 10 | -2325.2 | 10.5 | 10 | -2305.2 | 10.5 | 10 |
| -2285.2 | 10.5 | 10 | -2265.2 | 10.5 | 10 | -2245.2 | 10.5 | 10 | -2225.2 | 10.5 | 10 | -2205.2 | 10.5 | 10 |
| -2185.2 | 10.5 | 10 | -2165.2 | 10.5 | 10 | -2145.2 | 10.5 | 10 | -2125.2 | 10.5 | 10 | -2105.2 | 10.5 | 10 |
| -2085.2 | 10.5 | 10 | -2065.2 | 10.5 | 10 | -2045.2 | 10.5 | 10 | -2025.2 | 10.5 | 10 | -2005.2 | 10.5 | 10 |
| -1985.2 | 10.5 | 10 | -1965.2 | 10.5 | 10 | -1945.2 | 10.5 | 10 | -1925.2 | 10.5 | 10 | -1905.2 | 10.5 | 10 |
| -1885.2 | 10.5 | 10 | -1865.2 | 10.5 | 10 | -1845.2 | 10.5 | 10 | -1825.2 | 10.5 | 10 | -1805.2 | 10.5 | 10 |
| -1785.2 | 10.5 | 10 | -1765.2 | 10.5 | 10 | -1745.2 | 10.5 | 10 | -1725.2 | 10.5 | 10 | -1705.2 | 10.5 | 10 |
| -1685.2 | 10.5 | 10 | -1665.2 | 10.5 | 10 | -1645.2 | 10.5 | 10 | -1625.2 | 10.5 | 10 | -1605.2 | 10.5 | 10 |
| -1585.2 | 10.5 | 10 | -1565.2 | 10.5 | 10 | -1545.2 | 10.5 | 10 | -1525.2 | 10.5 | 10 | -1505.2 | 10.5 | 10 |
| -1485.2 | 10.5 | 10 | -1465.2 | 10.5 | 10 | -1445.2 | 10.5 | 10 | -1425.2 | 10.5 | 10 | -1405.2 | 10.5 | 10 |
| -1385.2 | 10.5 | 10 | -1365.2 | 10.5 | 10 | -1345.2 | 10.5 | 10 | -1325.2 | 10.5 | 10 | -1305.2 | 10.5 | 10 |
| -1285.2 | 10.5 | 10 | -1265.2 | 10.5 | 10 | -1245.2 | 10.5 | 10 | -1225.2 | 10.5 | 10 | -1205.2 | 10.5 | 10 |
| -1185.2 | 10.5 | 10 | -1165.2 | 10.5 | 10 | -1145.2 | 10.5 | 10 | -1125.2 | 10.5 | 10 | -1105.2 | 10.5 | 10 |
| -1085.2 | 10.5 | 10 | -1065.2 | 10.5 | 10 | -1045.2 | 10.5 | 10 | -1025.2 | 10.5 | 10 | -1005.2 | 10.5 | 10 |
| -985.2 | 10.5 | 10 | -965.2 | 10.5 | 10 | -945.2 | 10.5 | 10 | -925.2 | 10.5 | 10 | -905.2 | 10.5 | 10 |
| -885.2 | 10.5 | 10 | -865.2 | 10.5 | 10 | -845.2 | 10.5 | 10 | -825.2 | 10.5 | 10 | -805.2 | 10.5 | 10 |
| -785.2 | 10.5 | 10 | -765.2 | 10.5 | 10 | -745.2 | 10.5 | 10 | -725.2 | 10.5 | 10 | -705.2 | 10.5 | 10 |
| -685.2 | 10.5 | 10 | -665.2 | 10.5 | 10 | -645.2 | 10.5 | 10 | -625.2 | 10.5 | 10 | -605.2 | 10.5 | 10 |
| -585.2 | 10.5 | 10 | -565.2 | 10.5 | 10 | -545.2 | 10.5 | 10 | -525.2 | 10.5 | 10 | -505.2 | 10.5 | 10 |
| -485.2 | 10.5 | 10 | -465.2 | 10.5 | 10 | -445.2 | 10.5 | 10 | -425.2 | 10.5 | 10 | -405.2 | 10.5 | 10 |
| -385.2 | 10.5 | 10 | -365.2 | 10.5 | 10 | -345.2 | 10.5 | 10 | -325.2 | 10.5 | 10 | -305.2 | 10.5 | 10 |
| -285.2 | 10.5 | 10 | -265.2 | 10.5 | 10 | -245.2 | 10.5 | 10 | -225.2 | 10.5 | 10 | -205.2 | 10.5 | 10 |
| -185.2 | 10.5 | 10 | -165.2 | 10.5 | 10 | -145.2 | 10.5 | 10 | -125.2 | 10.5 | 10 | -105.2 | 10.5 | 10 |
| -85.2 | 10.5 | 10 | -65.2 | 10.5 | 10 | -45.2 | 10.5 | 10 | -25.2 | 10.5 | 10 | -3444.9 | -10.4 | 12 |
| -3444.9 | 10.4 | 12 | -3424.9 | -10.4 | 12 | -3424.9 | 10.4 | 12 | -3404.9 | -10.4 | 12 | -3404.9 | 10.4 | 12 |
| -3384.9 | -10.4 | 12 | -3384.9 | 10.4 | 12 | -3364.9 | -10.4 | 12 | -3364.9 | 10.4 | 12 | -3344.9 | -10.4 | 12 |
| -3344.9 | 10.4 | 12 | -3324.9 | -10.4 | 12 | -3324.9 | 10.4 | 12 | -3304.9 | -10.4 | 12 | -3304.9 | 10.4 | 12 |
| -3284.9 | -10.4 | 12 | -3284.9 | 10.4 | 12 | -3264.9 | -10.4 | 12 | -3264.9 | 10.4 | 12 | -3244.9 | -10.4 | 12 |
| -3244.9 | 10.4 | 12 | -3224.9 | -10.4 | 12 | -3224.9 | 10.4 | 12 | -3204.9 | -10.4 | 12 | -3204.9 | 10.4 | 12 |
| -3184.9 | -10.4 | 12 | -3184.9 | 10.4 | 12 | -3164.9 | -10.4 | 12 | -3164.9 | 10.4 | 12 | -3144.9 | -10.4 | 12 |
| -3144.9 | 10.4 | 12 | -3124.9 | -10.4 | 12 | -3124.9 | 10.4 | 12 | -3104.9 | -10.4 | 12 | -3104.9 | 10.4 | 12 |
| -3084.9 | -10.4 | 12 | -3084.9 | 10.4 | 12 | -3064.9 | -10.4 | 12 | -3064.9 | 10.4 | 12 | -3044.9 | -10.4 | 12 |
| -3044.9 | 10.4 | 12 | -3024.9 | -10.4 | 12 | -3024.9 | 10.4 | 12 | -3004.9 | -10.4 | 12 | -3004.9 | 10.4 | 12 |
| -2984.9 | -10.4 | 12 | -2984.9 | 10.4 | 12 | -2964.9 | -10.4 | 12 | -2964.9 | 10.4 | 12 | -2944.9 | -10.4 | 12 |
| -2944.9 | 10.4 | 12 | -2924.9 | -10.4 | 12 | -2924.9 | 10.4 | 12 | -2904.9 | -10.4 | 12 | -2904.9 | 10.4 | 12 |
| -2884.9 | -10.4 | 12 | -2884.9 | 10.4 | 12 | -2864.9 | -10.4 | 12 | -2864.9 | 10.4 | 12 | -2844.9 | -10.4 | 12 |
| -2844.9 | 10.4 | 12 | -2824.9 | -10.4 | 12 | -2824.9 | 10.4 | 12 | -2804.9 | -10.4 | 12 | -2804.9 | 10.4 | 12 |
| -2784.9 | -10.4 | 12 | -2784.9 | 10.4 | 12 | -2764.9 | -10.4 | 12 | -2764.9 | 10.4 | 12 | -2744.9 | -10.4 | 12 |
| -2744.9 | 10.4 | 12 | -2724.9 | -10.4 | 12 | -2724.9 | 10.4 | 12 | -2704.9 | -10.4 | 12 | -2704.9 | 10.4 | 12 |
| -2684.9 | -10.4 | 12 | -2684.9 | 10.4 | 12 | -2664.9 | -10.4 | 12 | -2664.9 | 10.4 | 12 | -2644.9 | -10.4 | 12 |
| -2644.9 | 10.4 | 12 | -2624.9 | -10.4 | 12 | -2624.9 | 10.4 | 12 | -2604.9 | -10.4 | 12 | -2604.9 | 10.4 | 12 |
| -2584.9 | -10.4 | 12 | -2584.9 | 10.4 | 12 | -2564.9 | -10.4 | 12 | -2564.9 | 10.4 | 12 | -2544.9 | -10.4 | 12 |
| -2544.9 | 10.4 | 12 | -2524.9 | -10.4 | 12 | -2524.9 | 10.4 | 12 | -2504.9 | -10.4 | 12 | -2504.9 | 10.4 | 12 |
| -2484.9 | -10.4 | 12 | -2484.9 | 10.4 | 12 | -2464.9 | -10.4 | 12 | -2464.9 | 10.4 | 12 | -2444.9 | -10.4 | 12 |
| -2444.9 | 10.4 | 12 | -2424.9 | -10.4 | 12 | -2424.9 | 10.4 | 12 | -2404.9 | -10.4 | 12 | -2404.9 | 10.4 | 12 |
| -2401.9 | -10.4 | 12 | -2401.9 | 10.4 | 12 | -2381.9 | -10.4 | 12 | -2381.9 | 10.4 | 12 | -2361.9 | -10.4 | 12 |
| -2361.9 | 10.4 | 12 | -2341.9 | -10.4 | 12 | -2341.9 | 10.4 | 12 | -2321.9 | -10.4 | 12 | -2321.9 | 10.4 | 12 |
| -2301.9 | -10.4 | 12 | -2301.9 | 10.4 | 12 | -2281.9 | -10.4 | 12 | -2281.9 | 10.4 | 12 | -2261.9 | -10.4 | 12 |
| -2261.9 | 10.4 | 12 | -2241.9 | -10.4 | 12 | -2241.9 | 10.4 | 12 | -2221.9 | -10.4 | 12 | -2221.9 | 10.4 | 12 |
| -2201.9 | -10.4 | 12 | -2201.9 | 10.4 | 12 | -2181.9 | -10.4 | 12 | -2181.9 | 10.4 | 12 | -2161.9 | -10.4 | 12 |
| -2161.9 | 10.4 | 12 | -2141.9 | -10.4 | 12 | -2141.9 | 10.4 | 12 | -2121.9 | -10.4 | 12 | -2121.9 | 10.4 | 12 |
| -2101.9 | -10.4 | 12 | -2101.9 | 10.4 | 12 | -2081.9 | -10.4 | 12 | -2081.9 | 10.4 | 12 | -2061.9 | -10.4 | 12 |
| -2061.9 | 10.4 | 12 | -2041.9 | -10.4 | 12 | -2041.9 | 10.4 | 12 | -2021.9 | -10.4 | 12 | -2021.9 | 10.4 | 12 |
| -2001.9 | -10.4 | 12 | -2001.9 | 10.4 | 12 | -1981.9 | -10.4 | 12 | -1981.9 | 10.4 | 12 | -1961.9 | -10.4 | 12 |
| -1961.9 | 10.4 | 12 | -1941.9 | -10.4 | 12 | -1941.9 | 10.4 | 12 | -1921.9 | -10.4 | 12 | -1921.9 | 10.4 | 12 |
| -1901.9 | -10.4 | 12 | -1901.9 | 10.4 | 12 | -1881.9 | -10.4 | 12 | -1881.9 | 10.4 | 12 | -1861.9 | -10.4 | 12 |
| -1861.9 | 10.4 | 12 | -1841.9 | -10.4 | 12 | -1841.9 | 10.4 | 12 | -1821.9 | -10.4 | 12 | -1821.9 | 10.4 | 12 |
| -1801.9 | -10.4 | 12 | -1801.9 | 10.4 | 12 | -1781.9 | -10.4 | 12 | -1781.9 | 10.4 | 12 | -1761.9 | -10.4 | 12 |
| -1761.9 | 10.4 | 12 | -1741.9 | -10.4 | 12 | -1741.9 | 10.4 | 12 | -1721.9 | -10.4 | 12 | -1721.9 | 10.4 | 12 |
| -1701.9 | -10.4 | 12 | -1701.9 | 10.4 | 12 | -1681.9 | -10.4 | 12 | -1681.9 | 10.4 | 12 | -1661.9 | -10.4 | 12 |
| -1661.9 | 10.4 | 12 | -1641.9 | -10.4 | 12 | -1641.9 | 10.4 | 12 | -1621.9 | -10.4 | 12 | -1621.9 | 10.4 | 12 |
| -1601.9 | -10.4 | 12 | -1601.9 | 10.4 | 12 | -1581.9 | -10.4 | 12 | -1581.9 | 10.4 | 12 | -1561.9 | -10.4 | 12 |
| -1561.9 | 10.4 | 12 | -1541.9 | -10.4 | 12 | -1541.9 | 10.4 | 12 | -1521.9 | -10.4 | 12 | -1521.9 | 10.4 | 12 |
| -1501.9 | -10.4 | 12 | -1501.9 | 10.4 | 12 | -1481.9 | -10.4 | 12 | -1481.9 | 10.4 | 12 | -1461.9 | -10.4 | 12 |
| -1461.9 | 10.4 | 12 | -1441.9 | -10.4 | 12 | -1441.9 | 10.4 | 12 | -1421.9 | -10.4 | 12 | -1421.9 | 10.4 | 12 |
| -1401.9 | -10.4 | 12 | -1401.9 | 10.4 | 12 | -1381.9 | -10.4 | 12 | -1381.9 | 10.4 | 12 | -1361.9 | -10.4 | 12 |
| -1361.9 | 10.4 | 12 | | | | | | | | | | | | |

Sezione a quota 135
Coordinate dei vertici
X Y
-3650.7 -17.5
-3650.7 17.5
0.0 17.5
0.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|---|---|---|---|
| -3645.2 | -10.5 | 10 | -3625.2 | -10.5 | 10 | -3605.2 | -10.5 | 10 | -3585.2 | -10.5 | | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -1461.9 | 10.4 | 12 | -1441.9 | -10.4 | 12 | -1441.9 | 10.4 | 12 | -1421.9 | -10.4 | 12 | -1421.9 | 10.4 | 12 |
| -1401.9 | -10.4 | 12 | -1401.9 | 10.4 | 12 | -1381.9 | -10.4 | 12 | -1381.9 | 10.4 | 12 | -1361.9 | -10.4 | 12 |
| -1361.9 | 10.4 | 12 | | | | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|---------|-------|
| -3650.7 | -17.5 |
| -3650.7 | 17.5 |
| 0.0 | 17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -3645.2 | -10.5 | 10 | -3625.2 | -10.5 | 10 | -3605.2 | -10.5 | 10 | -3585.2 | -10.5 | 10 | -3565.2 | -10.5 | 10 |
| -3545.2 | -10.5 | 10 | -3525.2 | -10.5 | 10 | -3505.2 | -10.5 | 10 | -3485.2 | -10.5 | 10 | -3465.2 | -10.5 | 10 |
| -3445.2 | -10.5 | 10 | -3425.2 | -10.5 | 10 | -3405.2 | -10.5 | 10 | -3385.2 | -10.5 | 10 | -3365.2 | -10.5 | 10 |
| -3345.2 | -10.5 | 10 | -3325.2 | -10.5 | 10 | -3305.2 | -10.5 | 10 | -3285.2 | -10.5 | 10 | -3265.2 | -10.5 | 10 |
| -3245.2 | -10.5 | 10 | -3225.2 | -10.5 | 10 | -3205.2 | -10.5 | 10 | -3185.2 | -10.5 | 10 | -3165.2 | -10.5 | 10 |
| -3145.2 | -10.5 | 10 | -3125.2 | -10.5 | 10 | -3105.2 | -10.5 | 10 | -3085.2 | -10.5 | 10 | -3065.2 | -10.5 | 10 |
| -3045.2 | -10.5 | 10 | -3025.2 | -10.5 | 10 | -3005.2 | -10.5 | 10 | -2985.2 | -10.5 | 10 | -2965.2 | -10.5 | 10 |
| -2945.2 | -10.5 | 10 | -2925.2 | -10.5 | 10 | -2905.2 | -10.5 | 10 | -2885.2 | -10.5 | 10 | -2865.2 | -10.5 | 10 |
| -2845.2 | -10.5 | 10 | -2825.2 | -10.5 | 10 | -2805.2 | -10.5 | 10 | -2785.2 | -10.5 | 10 | -2765.2 | -10.5 | 10 |
| -2745.2 | -10.5 | 10 | -2725.2 | -10.5 | 10 | -2705.2 | -10.5 | 10 | -2685.2 | -10.5 | 10 | -2665.2 | -10.5 | 10 |
| -2645.2 | -10.5 | 10 | -2625.2 | -10.5 | 10 | -2605.2 | -10.5 | 10 | -2585.2 | -10.5 | 10 | -2565.2 | -10.5 | 10 |
| -2545.2 | -10.5 | 10 | -2525.2 | -10.5 | 10 | -2505.2 | -10.5 | 10 | -2485.2 | -10.5 | 10 | -2465.2 | -10.5 | 10 |
| -2445.2 | -10.5 | 10 | -2425.2 | -10.5 | 10 | -2405.2 | -10.5 | 10 | -2385.2 | -10.5 | 10 | -2365.2 | -10.5 | 10 |
| -2345.2 | -10.5 | 10 | -2325.2 | -10.5 | 10 | -2305.2 | -10.5 | 10 | -2285.2 | -10.5 | 10 | -2265.2 | -10.5 | 10 |
| -2245.2 | -10.5 | 10 | -2225.2 | -10.5 | 10 | -2205.2 | -10.5 | 10 | -2185.2 | -10.5 | 10 | -2165.2 | -10.5 | 10 |
| -2145.2 | -10.5 | 10 | -2125.2 | -10.5 | 10 | -2105.2 | -10.5 | 10 | -2085.2 | -10.5 | 10 | -2065.2 | -10.5 | 10 |
| -2045.2 | -10.5 | 10 | -2025.2 | -10.5 | 10 | -2005.2 | -10.5 | 10 | -1985.2 | -10.5 | 10 | -1965.2 | -10.5 | 10 |
| -1945.2 | -10.5 | 10 | -1925.2 | -10.5 | 10 | -1905.2 | -10.5 | 10 | -1885.2 | -10.5 | 10 | -1865.2 | -10.5 | 10 |
| -1845.2 | -10.5 | 10 | -1825.2 | -10.5 | 10 | -1805.2 | -10.5 | 10 | -1785.2 | -10.5 | 10 | -1765.2 | -10.5 | 10 |
| -1745.2 | -10.5 | 10 | -1725.2 | -10.5 | 10 | -1705.2 | -10.5 | 10 | -1685.2 | -10.5 | 10 | -1665.2 | -10.5 | 10 |
| -1645.2 | -10.5 | 10 | -1625.2 | -10.5 | 10 | -1605.2 | -10.5 | 10 | -1585.2 | -10.5 | 10 | -1565.2 | -10.5 | 10 |
| -1545.2 | -10.5 | 10 | -1525.2 | -10.5 | 10 | -1505.2 | -10.5 | 10 | -1485.2 | -10.5 | 10 | -1465.2 | -10.5 | 10 |
| -1445.2 | -10.5 | 10 | -1425.2 | -10.5 | 10 | -1405.2 | -10.5 | 10 | -1385.2 | -10.5 | 10 | -1365.2 | -10.5 | 10 |
| -1345.2 | -10.5 | 10 | -1325.2 | -10.5 | 10 | -1305.2 | -10.5 | 10 | -1285.2 | -10.5 | 10 | -1265.2 | -10.5 | 10 |
| -1245.2 | -10.5 | 10 | -1225.2 | -10.5 | 10 | -1205.2 | -10.5 | 10 | -1185.2 | -10.5 | 10 | -1165.2 | -10.5 | 10 |
| -1145.2 | -10.5 | 10 | -1125.2 | -10.5 | 10 | -1105.2 | -10.5 | 10 | -1085.2 | -10.5 | 10 | -1065.2 | -10.5 | 10 |
| -1045.2 | -10.5 | 10 | -1025.2 | -10.5 | 10 | -1005.2 | -10.5 | 10 | -985.2 | -10.5 | 10 | -965.2 | -10.5 | 10 |
| -945.2 | -10.5 | 10 | -925.2 | -10.5 | 10 | -905.2 | -10.5 | 10 | -885.2 | -10.5 | 10 | -865.2 | -10.5 | 10 |
| -845.2 | -10.5 | 10 | -825.2 | -10.5 | 10 | -805.2 | -10.5 | 10 | -785.2 | -10.5 | 10 | -765.2 | -10.5 | 10 |
| -745.2 | -10.5 | 10 | -725.2 | -10.5 | 10 | -705.2 | -10.5 | 10 | -685.2 | -10.5 | 10 | -665.2 | -10.5 | 10 |
| -645.2 | -10.5 | 10 | -625.2 | -10.5 | 10 | -605.2 | -10.5 | 10 | -585.2 | -10.5 | 10 | -565.2 | -10.5 | 10 |
| -545.2 | -10.5 | 10 | -525.2 | -10.5 | 10 | -505.2 | -10.5 | 10 | -485.2 | -10.5 | 10 | -465.2 | -10.5 | 10 |
| -445.2 | -10.5 | 10 | -425.2 | -10.5 | 10 | -405.2 | -10.5 | 10 | -385.2 | -10.5 | 10 | -365.2 | -10.5 | 10 |
| -345.2 | -10.5 | 10 | -325.2 | -10.5 | 10 | -305.2 | -10.5 | 10 | -285.2 | -10.5 | 10 | -265.2 | -10.5 | 10 |
| -245.2 | -10.5 | 10 | -225.2 | -10.5 | 10 | -205.2 | -10.5 | 10 | -185.2 | -10.5 | 10 | -165.2 | -10.5 | 10 |
| -145.2 | -10.5 | 10 | -125.2 | -10.5 | 10 | -105.2 | -10.5 | 10 | -85.2 | -10.5 | 10 | -65.2 | -10.5 | 10 |
| -45.2 | -10.5 | 10 | -25.2 | -10.5 | 10 | -3645.2 | 10.5 | 10 | -3625.2 | 10.5 | 10 | -3605.2 | 10.5 | 10 |
| -3585.2 | 10.5 | 10 | -3565.2 | 10.5 | 10 | -3545.2 | 10.5 | 10 | -3525.2 | 10.5 | 10 | -3505.2 | 10.5 | 10 |
| -3485.2 | 10.5 | 10 | -3465.2 | 10.5 | 10 | -3445.2 | 10.5 | 10 | -3425.2 | 10.5 | 10 | -3405.2 | 10.5 | 10 |
| -3385.2 | 10.5 | 10 | -3365.2 | 10.5 | 10 | -3345.2 | 10.5 | 10 | -3325.2 | 10.5 | 10 | -3305.2 | 10.5 | 10 |
| -3285.2 | 10.5 | 10 | -3265.2 | 10.5 | 10 | -3245.2 | 10.5 | 10 | -3225.2 | 10.5 | 10 | -3205.2 | 10.5 | 10 |
| -3185.2 | 10.5 | 10 | -3165.2 | 10.5 | 10 | -3145.2 | 10.5 | 10 | -3125.2 | 10.5 | 10 | -3105.2 | 10.5 | 10 |
| -3085.2 | 10.5 | 10 | -3065.2 | 10.5 | 10 | -3045.2 | 10.5 | 10 | -3025.2 | 10.5 | 10 | -3005.2 | 10.5 | 10 |
| -2985.2 | 10.5 | 10 | -2965.2 | 10.5 | 10 | -2945.2 | 10.5 | 10 | -2925.2 | 10.5 | 10 | -2905.2 | 10.5 | 10 |
| -2885.2 | 10.5 | 10 | -2865.2 | 10.5 | 10 | -2845.2 | 10.5 | 10 | -2825.2 | 10.5 | 10 | -2805.2 | 10.5 | 10 |
| -2785.2 | 10.5 | 10 | -2765.2 | 10.5 | 10 | -2745.2 | 10.5 | 10 | -2725.2 | 10.5 | 10 | -2705.2 | 10.5 | 10 |
| -2685.2 | 10.5 | 10 | -2665.2 | 10.5 | 10 | -2645.2 | 10.5 | 10 | -2625.2 | 10.5 | 10 | -2605.2 | 10.5 | 10 |
| -2585.2 | 10.5 | 10 | -2565.2 | 10.5 | 10 | -2545.2 | 10.5 | 10 | -2525.2 | 10.5 | 10 | -2505.2 | 10.5 | 10 |
| -2485.2 | 10.5 | 10 | -2465.2 | 10.5 | 10 | -2445.2 | 10.5 | 10 | -2425.2 | 10.5 | 10 | -2405.2 | 10.5 | 10 |
| -2385.2 | 10.5 | 10 | -2365.2 | 10.5 | 10 | -2345.2 | 10.5 | 10 | -2325.2 | 10.5 | 10 | -2305.2 | 10.5 | 10 |
| -2285.2 | 10.5 | 10 | -2265.2 | 10.5 | 10 | -2245.2 | 10.5 | 10 | -2225.2 | 10.5 | 10 | -2205.2 | 10.5 | 10 |
| -2185.2 | 10.5 | 10 | -2165.2 | 10.5 | 10 | -2145.2 | 10.5 | 10 | -2125.2 | 10.5 | 10 | -2105.2 | 10.5 | 10 |
| -2085.2 | 10.5 | 10 | -2065.2 | 10.5 | 10 | -2045.2 | 10.5 | 10 | -2025.2 | 10.5 | 10 | -2005.2 | 10.5 | 10 |
| -1985.2 | 10.5 | 10 | -1965.2 | 10.5 | 10 | -1945.2 | 10.5 | 10 | -1925.2 | 10.5 | 10 | -1905.2 | 10.5 | 10 |
| -1885.2 | 10.5 | 10 | -1865.2 | 10.5 | 10 | -1845.2 | 10.5 | 10 | -1825.2 | 10.5 | 10 | -1805.2 | 10.5 | 10 |
| -1785.2 | 10.5 | 10 | -1765.2 | 10.5 | 10 | -1745.2 | 10.5 | 10 | -1725.2 | 10.5 | 10 | -1705.2 | 10.5 | 10 |
| -1685.2 | 10.5 | 10 | -1665.2 | 10.5 | 10 | -1645.2 | 10.5 | 10 | -1625.2 | 10.5 | 10 | -1605.2 | 10.5 | 10 |
| -1585.2 | 10.5 | 10 | -1565.2 | 10.5 | 10 | -1545.2 | 10.5 | 10 | -1525.2 | 10.5 | 10 | -1505.2 | 10.5 | 10 |
| -1485.2 | 10.5 | 10 | -1465.2 | 10.5 | 10 | -1445.2 | 10.5 | 10 | -1425.2 | 10.5 | 10 | -1405.2 | 10.5 | 10 |
| -1385.2 | 10.5 | 10 | -1365.2 | 10.5 | 10 | -1345.2 | 10.5 | 10 | -1325.2 | 10.5 | 10 | -1305.2 | 10.5 | 10 |
| -1285.2 | 10.5 | 10 | -1265.2 | 10.5 | 10 | -1245.2 | 10.5 | 10 | -1225.2 | 10.5 | 10 | -1205.2 | 10.5 | 10 |
| -1185.2 | 10.5 | 10 | -1165.2 | 10.5 | 10 | -1145.2 | 10.5 | 10 | -1125.2 | 10.5 | 10 | -1105.2 | 10.5 | 10 |
| -1085.2 | 10.5 | 10 | -1065.2 | 10.5 | 10 | -1045.2 | 10.5 | 10 | -1025.2 | 10.5 | 10 | -1005.2 | 10.5 | 10 |
| -985.2 | 10.5 | 10 | -965.2 | 10.5 | 10 | -945.2 | 10.5 | 10 | -925.2 | 10.5 | 10 | -905.2 | 10.5 | 10 |
| -885.2 | 10.5 | 10 | -865.2 | 10.5 | 10 | -845.2 | 10.5 | 10 | -825.2 | 10.5 | 10 | -805.2 | 10.5 | 10 |
| -785.2 | 10.5 | 10 | -765.2 | 10.5 | 10 | -745.2 | 10.5 | 10 | -725.2 | 10.5 | 10 | -705.2 | 10.5 | 10 |
| -685.2 | 10.5 | 10 | -665.2 | 10.5 | 10 | -645.2 | 10.5 | 10 | -625.2 | 10.5 | 10 | -605.2 | 10.5 | 10 |
| -585.2 | 10.5 | 10 | -565.2 | 10.5 | 10 | -545.2 | 10.5 | 10 | -525.2 | 10.5 | 10 | -505.2 | 10.5 | 10 |
| -485.2 | 10.5 | 10 | -465.2 | 10.5 | 10 | -445.2 | 10.5 | 10 | -425.2 | 10.5 | 10 | -405.2 | 10.5 | 10 |
| -385.2 | 10.5 | 10 | -365.2 | 10.5 | 10 | -345.2 | 10.5 | 10 | -325.2 | 10.5 | 10 | -305.2 | 10.5 | 10 |
| -285.2 | 10.5 | 10 | -265.2 | 10.5 | 10 | -245.2 | 10.5 | 10 | -225.2 | 10.5 | 10 | -205.2 | 10.5 | 10 |
| -185.2 | 10.5 | 10 | -165.2 | 10.5 | 10 | -145.2 | 10.5 | 10 | -125.2 | 10.5 | 10 | -105.2 | 10.5 | 10 |
| -85.2 | 10.5 | 10 | -65.2 | 10.5 | 10 | -45.2 | 10.5 | 10 | -25.2 | 10.5 | 10 | -3444.9 | -10.4 | 12 |
| -3444.9 | 10.4 | 12 | -3424.9 | -10.4 | 12 | -3424.9 | 10.4 | 12 | -3404.9 | -10.4 | 12 | -3404.9 | 10.4 | 12 |
| -3384.9 | -10.4 | 12 | -3384.9 | 10.4 | 12 | -3364.9 | -10.4 | 12 | -3364.9 | 10.4 | 12 | -3344.9 | -10.4 | 12 |
| -3344.9 | 10.4 | 12 | -3324.9 | -10.4 | 12 | -3324.9 | 10.4 | 12 | -3304.9 | -10.4 | 12 | -3304.9 | 10.4 | 12 |
| -3284.9 | -10.4 | 12 | -3284.9 | 10.4 | 12 | -3264.9 | -10.4 | 12 | -3264.9 | 10.4 | 12 | -3244.9 | -10.4 | 12 |
| -3244.9 | 10.4 | 12 | -3224.9 | -10.4 | 12 | -3224.9 | 10.4 | 12 | -3204.9 | -10.4 | 12 | -3204.9 | 10.4 | 12 |
| -3184.9 | -10.4 | 12 | -3184.9 | 10.4 | 12 | -3164.9 | -10.4 | 12 | -3164.9 | 10.4 | 12 | -3144.9 | -10.4 | 12 |
| -3144.9 | 10.4 | 12 | -3124.9 | -10.4 | 12 | -3124.9 | 10.4 | 12 | -3104.9 | -10.4 | 12 | -3104.9 | 10.4 | 12 |
| -3084.9 | -10.4 | 12 | -3084.9 | 10.4 | 12 | -3064.9 | -10.4 | 12 | -3064.9 | 10.4 | 12 | -3044.9 | -10.4 | 12 |
| -3044.9 | 10.4 | 12 | -3024.9 | -10.4 | 12 | -3024.9 | 10.4 | 12 | -3004.9 | -10.4 | 12 | -3004.9 | 10.4 | 12 |
| -2984.9 | -10.4 | 12 | -2984.9 | 10.4 | 12 | -2964.9 | | | | | | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|-------|----|
| -2585.2 | 10.5 | 10 | -2565.2 | 10.5 | 10 | -2545.2 | 10.5 | 10 | -2525.2 | 10.5 | 10 | -2505.2 | 10.5 | 10 |
| -2485.2 | 10.5 | 10 | -2465.2 | 10.5 | 10 | -2445.2 | 10.5 | 10 | -2425.2 | 10.5 | 10 | -2405.2 | 10.5 | 10 |
| -2385.2 | 10.5 | 10 | -2365.2 | 10.5 | 10 | -2345.2 | 10.5 | 10 | -2325.2 | 10.5 | 10 | -2305.2 | 10.5 | 10 |
| -2285.2 | 10.5 | 10 | -2265.2 | 10.5 | 10 | -2245.2 | 10.5 | 10 | -2225.2 | 10.5 | 10 | -2205.2 | 10.5 | 10 |
| -2185.2 | 10.5 | 10 | -2165.2 | 10.5 | 10 | -2145.2 | 10.5 | 10 | -2125.2 | 10.5 | 10 | -2105.2 | 10.5 | 10 |
| -2085.2 | 10.5 | 10 | -2065.2 | 10.5 | 10 | -2045.2 | 10.5 | 10 | -2025.2 | 10.5 | 10 | -2005.2 | 10.5 | 10 |
| -1985.2 | 10.5 | 10 | -1965.2 | 10.5 | 10 | -1945.2 | 10.5 | 10 | -1925.2 | 10.5 | 10 | -1905.2 | 10.5 | 10 |
| -1885.2 | 10.5 | 10 | -1865.2 | 10.5 | 10 | -1845.2 | 10.5 | 10 | -1825.2 | 10.5 | 10 | -1805.2 | 10.5 | 10 |
| -1785.2 | 10.5 | 10 | -1765.2 | 10.5 | 10 | -1745.2 | 10.5 | 10 | -1725.2 | 10.5 | 10 | -1705.2 | 10.5 | 10 |
| -1685.2 | 10.5 | 10 | -1665.2 | 10.5 | 10 | -1645.2 | 10.5 | 10 | -1625.2 | 10.5 | 10 | -1605.2 | 10.5 | 10 |
| -1585.2 | 10.5 | 10 | -1565.2 | 10.5 | 10 | -1545.2 | 10.5 | 10 | -1525.2 | 10.5 | 10 | -1505.2 | 10.5 | 10 |
| -1485.2 | 10.5 | 10 | -1465.2 | 10.5 | 10 | -1445.2 | 10.5 | 10 | -1425.2 | 10.5 | 10 | -1405.2 | 10.5 | 10 |
| -1385.2 | 10.5 | 10 | -1365.2 | 10.5 | 10 | -1345.2 | 10.5 | 10 | -1325.2 | 10.5 | 10 | -1305.2 | 10.5 | 10 |
| -1285.2 | 10.5 | 10 | -1265.2 | 10.5 | 10 | -1245.2 | 10.5 | 10 | -1225.2 | 10.5 | 10 | -1205.2 | 10.5 | 10 |
| -1185.2 | 10.5 | 10 | -1165.2 | 10.5 | 10 | -1145.2 | 10.5 | 10 | -1125.2 | 10.5 | 10 | -1105.2 | 10.5 | 10 |
| -1085.2 | 10.5 | 10 | -1065.2 | 10.5 | 10 | -1045.2 | 10.5 | 10 | -1025.2 | 10.5 | 10 | -1005.2 | 10.5 | 10 |
| -985.2 | 10.5 | 10 | -965.2 | 10.5 | 10 | -945.2 | 10.5 | 10 | -925.2 | 10.5 | 10 | -905.2 | 10.5 | 10 |
| -885.2 | 10.5 | 10 | -865.2 | 10.5 | 10 | -845.2 | 10.5 | 10 | -825.2 | 10.5 | 10 | -805.2 | 10.5 | 10 |
| -785.2 | 10.5 | 10 | -765.2 | 10.5 | 10 | -745.2 | 10.5 | 10 | -725.2 | 10.5 | 10 | -705.2 | 10.5 | 10 |
| -685.2 | 10.5 | 10 | -665.2 | 10.5 | 10 | -645.2 | 10.5 | 10 | -625.2 | 10.5 | 10 | -605.2 | 10.5 | 10 |
| -585.2 | 10.5 | 10 | -565.2 | 10.5 | 10 | -545.2 | 10.5 | 10 | -525.2 | 10.5 | 10 | -505.2 | 10.5 | 10 |
| -485.2 | 10.5 | 10 | -465.2 | 10.5 | 10 | -445.2 | 10.5 | 10 | -425.2 | 10.5 | 10 | -405.2 | 10.5 | 10 |
| -385.2 | 10.5 | 10 | -365.2 | 10.5 | 10 | -345.2 | 10.5 | 10 | -325.2 | 10.5 | 10 | -305.2 | 10.5 | 10 |
| -285.2 | 10.5 | 10 | -265.2 | 10.5 | 10 | -245.2 | 10.5 | 10 | -225.2 | 10.5 | 10 | -205.2 | 10.5 | 10 |
| -185.2 | 10.5 | 10 | -165.2 | 10.5 | 10 | -145.2 | 10.5 | 10 | -125.2 | 10.5 | 10 | -105.2 | 10.5 | 10 |
| -85.2 | 10.5 | 10 | -65.2 | 10.5 | 10 | -45.2 | 10.5 | 10 | -25.2 | 10.5 | 10 | -3444.9 | -10.4 | 12 |
| -3444.9 | 10.4 | 12 | -3424.9 | -10.4 | 12 | -3424.9 | 10.4 | 12 | -3404.9 | -10.4 | 12 | -3404.9 | 10.4 | 12 |
| -3384.9 | -10.4 | 12 | -3384.9 | 10.4 | 12 | -3364.9 | -10.4 | 12 | -3364.9 | 10.4 | 12 | -3344.9 | -10.4 | 12 |
| -3344.9 | 10.4 | 12 | -3324.9 | -10.4 | 12 | -3324.9 | 10.4 | 12 | -3304.9 | -10.4 | 12 | -3304.9 | 10.4 | 12 |
| -3284.9 | -10.4 | 12 | -3284.9 | 10.4 | 12 | -3264.9 | -10.4 | 12 | -3264.9 | 10.4 | 12 | -3244.9 | -10.4 | 12 |
| -3244.9 | 10.4 | 12 | -3224.9 | -10.4 | 12 | -3224.9 | 10.4 | 12 | -3204.9 | -10.4 | 12 | -3204.9 | 10.4 | 12 |
| -3184.9 | -10.4 | 12 | -3184.9 | 10.4 | 12 | -3164.9 | -10.4 | 12 | -3164.9 | 10.4 | 12 | -3144.9 | -10.4 | 12 |
| -3144.9 | 10.4 | 12 | -3124.9 | -10.4 | 12 | -3124.9 | 10.4 | 12 | -3104.9 | -10.4 | 12 | -3104.9 | 10.4 | 12 |
| -3084.9 | -10.4 | 12 | -3084.9 | 10.4 | 12 | -3064.9 | -10.4 | 12 | -3064.9 | 10.4 | 12 | -3044.9 | -10.4 | 12 |
| -3044.9 | 10.4 | 12 | -3024.9 | -10.4 | 12 | -3024.9 | 10.4 | 12 | -3004.9 | -10.4 | 12 | -3004.9 | 10.4 | 12 |
| -2984.9 | -10.4 | 12 | -2984.9 | 10.4 | 12 | -2964.9 | -10.4 | 12 | -2964.9 | 10.4 | 12 | -2944.9 | -10.4 | 12 |
| -2944.9 | 10.4 | 12 | -2924.9 | -10.4 | 12 | -2924.9 | 10.4 | 12 | -2904.9 | -10.4 | 12 | -2904.9 | 10.4 | 12 |
| -2884.9 | -10.4 | 12 | -2884.9 | 10.4 | 12 | -2864.9 | -10.4 | 12 | -2864.9 | 10.4 | 12 | -2844.9 | -10.4 | 12 |
| -2844.9 | 10.4 | 12 | -2824.9 | -10.4 | 12 | -2824.9 | 10.4 | 12 | -2804.9 | -10.4 | 12 | -2804.9 | 10.4 | 12 |
| -2784.9 | -10.4 | 12 | -2784.9 | 10.4 | 12 | -2764.9 | -10.4 | 12 | -2764.9 | 10.4 | 12 | -2744.9 | -10.4 | 12 |
| -2744.9 | 10.4 | 12 | -2724.9 | -10.4 | 12 | -2724.9 | 10.4 | 12 | -2704.9 | -10.4 | 12 | -2704.9 | 10.4 | 12 |
| -2684.9 | -10.4 | 12 | -2684.9 | 10.4 | 12 | -2664.9 | -10.4 | 12 | -2664.9 | 10.4 | 12 | -2644.9 | -10.4 | 12 |
| -2644.9 | 10.4 | 12 | -2624.9 | -10.4 | 12 | -2624.9 | 10.4 | 12 | -2604.9 | -10.4 | 12 | -2604.9 | 10.4 | 12 |
| -2584.9 | -10.4 | 12 | -2584.9 | 10.4 | 12 | -2564.9 | -10.4 | 12 | -2564.9 | 10.4 | 12 | -2544.9 | -10.4 | 12 |
| -2544.9 | 10.4 | 12 | -2524.9 | -10.4 | 12 | -2524.9 | 10.4 | 12 | -2504.9 | -10.4 | 12 | -2504.9 | 10.4 | 12 |
| -2484.9 | -10.4 | 12 | -2484.9 | 10.4 | 12 | -2464.9 | -10.4 | 12 | -2464.9 | 10.4 | 12 | -2444.9 | -10.4 | 12 |
| -2444.9 | 10.4 | 12 | -2424.9 | -10.4 | 12 | -2424.9 | 10.4 | 12 | -2404.9 | -10.4 | 12 | -2404.9 | 10.4 | 12 |
| -2401.9 | -10.4 | 12 | -2401.9 | 10.4 | 12 | -2381.9 | -10.4 | 12 | -2381.9 | 10.4 | 12 | -2361.9 | -10.4 | 12 |
| -2361.9 | 10.4 | 12 | -2341.9 | -10.4 | 12 | -2341.9 | 10.4 | 12 | -2321.9 | -10.4 | 12 | -2321.9 | 10.4 | 12 |
| -2301.9 | -10.4 | 12 | -2301.9 | 10.4 | 12 | -2281.9 | -10.4 | 12 | -2281.9 | 10.4 | 12 | -2261.9 | -10.4 | 12 |
| -2261.9 | 10.4 | 12 | -2241.9 | -10.4 | 12 | -2241.9 | 10.4 | 12 | -2221.9 | -10.4 | 12 | -2221.9 | 10.4 | 12 |
| -2201.9 | -10.4 | 12 | -2201.9 | 10.4 | 12 | -2181.9 | -10.4 | 12 | -2181.9 | 10.4 | 12 | -2161.9 | -10.4 | 12 |
| -2161.9 | 10.4 | 12 | -2141.9 | -10.4 | 12 | -2141.9 | 10.4 | 12 | -2121.9 | -10.4 | 12 | -2121.9 | 10.4 | 12 |
| -2101.9 | -10.4 | 12 | -2101.9 | 10.4 | 12 | -2081.9 | -10.4 | 12 | -2081.9 | 10.4 | 12 | -2061.9 | -10.4 | 12 |
| -2061.9 | 10.4 | 12 | -2041.9 | -10.4 | 12 | -2041.9 | 10.4 | 12 | -2021.9 | -10.4 | 12 | -2021.9 | 10.4 | 12 |
| -2001.9 | -10.4 | 12 | -2001.9 | 10.4 | 12 | -1981.9 | -10.4 | 12 | -1981.9 | 10.4 | 12 | -1961.9 | -10.4 | 12 |
| -1961.9 | 10.4 | 12 | -1941.9 | -10.4 | 12 | -1941.9 | 10.4 | 12 | -1921.9 | -10.4 | 12 | -1921.9 | 10.4 | 12 |
| -1901.9 | -10.4 | 12 | -1901.9 | 10.4 | 12 | -1881.9 | -10.4 | 12 | -1881.9 | 10.4 | 12 | -1861.9 | -10.4 | 12 |
| -1861.9 | 10.4 | 12 | -1841.9 | -10.4 | 12 | -1841.9 | 10.4 | 12 | -1821.9 | -10.4 | 12 | -1821.9 | 10.4 | 12 |
| -1801.9 | -10.4 | 12 | -1801.9 | 10.4 | 12 | -1781.9 | -10.4 | 12 | -1781.9 | 10.4 | 12 | -1761.9 | -10.4 | 12 |
| -1761.9 | 10.4 | 12 | -1741.9 | -10.4 | 12 | -1741.9 | 10.4 | 12 | -1721.9 | -10.4 | 12 | -1721.9 | 10.4 | 12 |
| -1701.9 | -10.4 | 12 | -1701.9 | 10.4 | 12 | -1681.9 | -10.4 | 12 | -1681.9 | 10.4 | 12 | -1661.9 | -10.4 | 12 |
| -1661.9 | 10.4 | 12 | -1641.9 | -10.4 | 12 | -1641.9 | 10.4 | 12 | -1621.9 | -10.4 | 12 | -1621.9 | 10.4 | 12 |
| -1601.9 | -10.4 | 12 | -1601.9 | 10.4 | 12 | -1581.9 | -10.4 | 12 | -1581.9 | 10.4 | 12 | -1561.9 | -10.4 | 12 |
| -1561.9 | 10.4 | 12 | -1541.9 | -10.4 | 12 | -1541.9 | 10.4 | 12 | -1521.9 | -10.4 | 12 | -1521.9 | 10.4 | 12 |
| -1501.9 | -10.4 | 12 | -1501.9 | 10.4 | 12 | -1481.9 | -10.4 | 12 | -1481.9 | 10.4 | 12 | -1461.9 | -10.4 | 12 |
| -1461.9 | 10.4 | 12 | -1441.9 | -10.4 | 12 | -1441.9 | 10.4 | 12 | -1421.9 | -10.4 | 12 | -1421.9 | 10.4 | 12 |
| -1401.9 | -10.4 | 12 | -1401.9 | 10.4 | 12 | -1381.9 | -10.4 | 12 | -1381.9 | 10.4 | 12 | -1361.9 | -10.4 | 12 |
| -1361.9 | 10.4 | 12 | | | | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo
Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| | | | | | | | |
|-----|------|-----|-------|-----|------|------|-----|
| fcd | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
| 188 | 14 | 283 | 243 | 495 | 3651 | 2 | 243 |

Verifica a pressoflessione

| | | | | | | |
|-------|----------|----------|---------|---------|---------|-----------------|
| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
| 0 | -6152950 | 29131390 | -228875 | -228875 | -228875 | 8.1931 3 SLV |
| 0 | -7454870 | 14600910 | -190755 | -171170 | -190755 | 5.4869 3 SLV |
| 68 | 1936388 | 21339140 | -185399 | -185399 | -185399 | 55.7701 2 SLV |
| 68 | 2322330 | 18668370 | -85873 | -134968 | -85873 | 20.5177 5 SLV |
| 135 | 6775174 | 13679360 | -166513 | -166513 | -166513 | 5.9131 2 SLV |
| 135 | 6122567 | 26192150 | -108432 | -123602 | -108432 | 5.5960 13 SLV |
| 165 | 8022057 | 10286330 | -171446 | -171446 | -171446 | 4.7322 2 SLV |
| 165 | 7376219 | 21000050 | -115391 | -127734 | -115391 | 4.5523 13 SLV |
| 300 | 6825716 | -1670765 | -114189 | -114189 | -114189 | 5.1919 2 SLV |
| 300 | 7734223 | 3096586 | -87757 | -83176 | -87757 | 4.1377 15 SLV |
| 435 | -725878 | -4173338 | -70698 | -70698 | -70698 | 154.8706 2 SLV |
| 435 | -753161 | -2545740 | -39708 | -45240 | -39708 | 107.1061 10 SLV |

Controllo dello sforzo normale massimo

| | | | |
|-------|---------|-------------------|-----------------|
| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
| 0 | -224120 | -9615490 | 42.9034 7 SLV |
| 68 | -185625 | -9615490 | 51.8008 7 SLV |
| 135 | -164288 | -9615490 | 58.5284 11 SLV |
| 165 | -160324 | -9615490 | 59.9754 11 SLV |
| 300 | -99937 | -9615490 | 96.2159 11 SLV |
| 435 | -50612 | -9615490 | 189.9846 11 SLV |

Verifica compressione del diagonale

| | | | | |
|-------|---------|--------|---------|--------|
| quota | epsilon | VEd | Vrzd | comb |
| 0 | 1.00 | 155072 | 4853520 | 3 SLV |
| 0 | 1.00 | 230913 | 4838062 | 14 SLV |
| 68 | 1.00 | 146959 | 4844867 | 3 SLV |
| 68 | 1.00 | 226236 | 4831843 | 14 SLV |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | |
|-----|------|--------|---------|----|-----|
| 135 | 1.00 | 128265 | 4841085 | 3 | SLU |
| 135 | 1.00 | 213477 | 4829418 | 14 | SLV |
| 165 | 1.00 | 109248 | 4842067 | 3 | SLU |
| 165 | 1.00 | 191703 | 4830810 | 14 | SLV |
| 300 | 1.00 | 62531 | 4830600 | 3 | SLU |
| 300 | 1.00 | 124784 | 4822837 | 14 | SLV |
| 435 | 1.00 | 41720 | 4821891 | 3 | SLU |
| 435 | 1.00 | 82560 | 4817444 | 16 | SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-------|--------|--------|--------|---------|---------|--------|
| 0 | 525.7 | 0.0054 | 0.0041 | 155072 | -228875 | 2146379 | 3 SLU |
| 0 | 525.7 | 0.0054 | 0.0041 | 230913 | -151585 | 2146379 | 14 SLV |
| 68 | 525.7 | 0.0055 | 0.0041 | 146959 | -185610 | 2190403 | 3 SLU |
| 68 | 525.7 | 0.0055 | 0.0041 | 226236 | -120486 | 2190403 | 14 SLV |
| 135 | 525.7 | 0.0055 | 0.0041 | 128265 | -166701 | 2190403 | 3 SLU |
| 135 | 525.7 | 0.0055 | 0.0041 | 213477 | -108364 | 2190403 | 14 SLV |
| 165 | 525.7 | 0.0055 | 0.0041 | 109248 | -171607 | 2190403 | 3 SLU |
| 165 | 525.7 | 0.0055 | 0.0041 | 191703 | -115324 | 2190403 | 14 SLV |
| 300 | 525.7 | 0.0055 | 0.0041 | 62531 | -114276 | 2190403 | 3 SLU |
| 300 | 525.7 | 0.0055 | 0.0041 | 124784 | -75456 | 2190403 | 14 SLV |
| 435 | 525.7 | 0.0053 | 0.0041 | 41720 | -70726 | 2133889 | 3 SLU |
| 435 | 525.7 | 0.0053 | 0.0041 | 82560 | -48491 | 2133889 | 16 SLV |

Pannello P3

Parete fra le coordinate in pianta (693;630) (693;1398)

da quota -40 a quota 455

Valori in daN, cm

C32/40: rck 400

fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|---------|-------|----|-----|-----|-----|-----|-------|--------|-------|---------|--------|---------|
| 1248 | o 50 | 35 | 3.8 | 3.8 | 7.1 | 7.1 | 1.421 | 16 SLV | -5974 | 397312 | -8491 | -564684 |
| | v 70 | 35 | 3.5 | 3.5 | 6.7 | 6.7 | 4.756 | 15 SLV | -365 | 94319 | -1736 | -448593 |
| 5131 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 3.747 | 16 SLV | -2990 | -175285 | -11201 | 656722 |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.014 | 16 SLV | 15461 | 871825 | 15684 | -884421 |
| 5519 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 1.273 | 16 SLV | -3240 | 433613 | -4125 | -551996 |
| | v 50 | 35 | 4.6 | 4.6 | 7.0 | 7.0 | 1.069 | 16 SLV | 5626 | 418306 | 6013 | -447078 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|----------|--------|------|----------|----------|---------|------|---------|------|
| 1248 | o 50 | 35 | 3.8 | 3.8 | 7.1 | 7.1 | -57.4 | 1 ra | -6.28E03 | 2.66E05 | 1859.7 | 1 ra | -6.28E03 | 2.66E05 | 0.00 | 21.8 | 0.0 | 1 ra |
| | v 70 | 35 | 3.5 | 3.5 | 6.7 | 6.7 | -12.0 | 1 ra | -3.94E02 | 6.41E04 | 649.4 | 1 ra | -3.94E02 | 6.41E04 | 0.00 | 4.2 | 0.0 | 1 ra |
| 5131 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -14.0 | 1 ra | -2.58E03 | -1.01E05 | 617.1 | 1 ra | -2.58E03 | -1.01E05 | 0.00 | 4.2 | 0.0 | 1 ra |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -50.4 | 1 ra | 9.97E03 | 4.90E05 | 2731.7 | 1 ra | 9.97E03 | 4.90E05 | 0.00 | 25.9 | 0.0 | 1 ra |
| 5519 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -36.6 | 1 ra | -3.02E03 | 2.50E05 | 1978.1 | 1 ra | -3.02E03 | 2.50E05 | 0.00 | 11.2 | 0.0 | 1 ra |
| | v 50 | 35 | 4.6 | 4.6 | 7.0 | 7.0 | -48.3 | 1 ra | 3.40E03 | 2.34E05 | 2497.3 | 1 ra | 3.40E03 | 2.34E05 | 0.00 | 24.0 | 0.0 | 1 ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|----------|--------|------|----------|----------|---------|------|---------|------|
| 1248 | o 50 | 35 | 3.8 | 3.8 | 7.1 | 7.1 | -51.4 | 3 fr | -6.01E03 | 2.39E05 | 1625.1 | 3 fr | -6.01E03 | 2.39E05 | 0.00 | 19.4 | 0.0 | 1 fr |
| | v 70 | 35 | 3.5 | 3.5 | 6.7 | 6.7 | -10.8 | 3 fr | -3.76E02 | 5.78E04 | 582.4 | 3 fr | -3.76E02 | 5.78E04 | 0.00 | 3.8 | 0.0 | 1 fr |
| 5131 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -12.6 | 3 fr | -2.33E03 | -9.11E04 | 555.1 | 3 fr | -2.33E03 | -9.11E04 | 0.00 | 3.7 | 0.0 | 1 fr |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -45.4 | 3 fr | 9.10E03 | 4.41E05 | 2466.9 | 3 fr | 9.10E03 | 4.41E05 | 0.00 | 23.4 | 0.0 | 1 fr |
| 5519 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -32.9 | 3 fr | -2.73E03 | 2.25E05 | 1778.0 | 3 fr | -2.73E03 | 2.25E05 | 0.00 | 10.1 | 0.0 | 1 fr |
| | v 50 | 35 | 4.6 | 4.6 | 7.0 | 7.0 | -43.5 | 3 fr | 3.08E03 | 2.11E05 | 2250.8 | 3 fr | 3.08E03 | 2.11E05 | 0.00 | 21.6 | 0.0 | 1 fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|----------|--------|------|----------|----------|---------|------|---------|------|
| 1248 | o 50 | 35 | 3.8 | 3.8 | 7.1 | 7.1 | -32.8 | 1 q. | -5.84E03 | 1.59E05 | 844.5 | 1 q. | -5.84E03 | 1.59E05 | 0.00 | 11.9 | 0.0 | 1 q. |
| | v 70 | 35 | 3.5 | 3.5 | 6.7 | 6.7 | -7.3 | 1 q. | -3.15E02 | 3.95E04 | 389.0 | 1 q. | -3.15E02 | 3.95E04 | 0.00 | 2.6 | 0.0 | 1 q. |
| 5131 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -8.2 | 1 q. | -1.80E03 | -6.02E04 | 333.0 | 1 q. | -1.80E03 | -6.02E04 | 0.00 | 2.4 | 0.0 | 1 q. |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -29.8 | 1 q. | 6.31E03 | 2.89E05 | 1637.7 | 1 q. | 6.31E03 | 2.89E05 | 0.00 | 15.4 | 0.0 | 1 q. |
| 5519 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -21.2 | 1 q. | -2.16E03 | 1.46E05 | 1103.7 | 1 q. | -2.16E03 | 1.46E05 | 0.00 | 6.5 | 0.0 | 1 q. |
| | v 50 | 35 | 4.6 | 4.6 | 7.0 | 7.0 | -28.5 | 1 q. | 2.11E03 | 1.38E05 | 1486.9 | 1 q. | 2.11E03 | 1.38E05 | 0.00 | 14.2 | 0.0 | 1 q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo

Verifica punto a coordinate x=693 y=662 z=174

| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
|-------|----|------|------|-----|-----|-------|------|-------|-------|---------|-------|----------|-----|-------|
| v 160 | 35 | 15.3 | 15.3 | 7.2 | 7.2 | 1.088 | | 2 SLU | 36257 | 1108492 | 39433 | -1205579 | 577 | 22517 |

Combinazione rara

Verifica punto a coordinate x=693 y=662 z=174

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|-------|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|---------|-----|---------|---|
| v 160 | 35 | 15.3 | 15.3 | 7.2 | 7.2 | -47.3 | 1 ra | 2.47E04 | 7.41E05 | 2945.2 | 1 ra | 2.47E04 | 7.41E05 | 0.00 | 28.0 | 0.0 | 1 ra | |

Combinazione frequente

Verifica punto a coordinate x=693 y=662 z=174

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|-------|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|---------|-----|---------|---|
| v 160 | 35 | 15.3 | 15.3 | 7.2 | 7.2 | -42.5 | 3 fr | 2.33E04 | 6.67E05 | 2693.2 | 3 fr | 2.33E04 | 6.67E05 | 0.00 | 25.5 | 0.0 | 3 fr | |

Combinazione quasi permanente

Verifica punto a coordinate x=693 y=662 z=174

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|-------|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|---------|-----|---------|---|
| v 160 | 35 | 15.3 | 15.3 | 7.2 | 7.2 | -29.4 | 1 q. | 1.75E04 | 4.50E05 | 1894.5 | 1 q. | 1.75E04 | 4.50E05 | 0.00 | 17.8 | 0.0 | 1 q. | |

Verifica dei pannelli

Pannello : Pannello da Filo 7 a Filo 8

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|------|
| 630.0 | 17.5 |
| 630.0 | 40.0 |
| 665.0 | 40.0 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 40.0 |
| 1340.0 | 40.0 |
| 1340.0 | 17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

1397.5 17.5
1397.5 -17.5
1340.0 -17.5
1340.0 -40.0
1305.0 -40.0
1305.0 -17.5
665.0 -17.5
665.0 -40.0
630.0 -40.0
630.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 |
| 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 |
| 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 |
| 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 |
| 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 |
| 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 |
| 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 |
| 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 |
| 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 |
| 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 |
| 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 |
| 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 |
| 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 |
| 1375.5 | 10.5 | 10 | 646.1 | -10.4 | 12 | 646.1 | 10.4 | 12 | 666.1 | -10.4 | 12 | 666.1 | 10.4 | 12 |
| 686.1 | -10.4 | 12 | 686.1 | 10.4 | 12 | 706.1 | -10.4 | 12 | 706.1 | 10.4 | 12 | 726.1 | -10.4 | 12 |
| 726.1 | 10.4 | 12 | 746.1 | -10.4 | 12 | 746.1 | 10.4 | 12 | 766.1 | -10.4 | 12 | 766.1 | 10.4 | 12 |
| 786.1 | -10.4 | 12 | 786.1 | 10.4 | 12 | 806.1 | -10.4 | 12 | 806.1 | 10.4 | 12 | 826.1 | -10.4 | 12 |
| 826.1 | 10.4 | 12 | 846.1 | -10.4 | 12 | 846.1 | 10.4 | 12 | 866.1 | -10.4 | 12 | 866.1 | 10.4 | 12 |
| 886.1 | -10.4 | 12 | 886.1 | 10.4 | 12 | 906.1 | -10.4 | 12 | 906.1 | 10.4 | 12 | 926.1 | -10.4 | 12 |
| 926.1 | 10.4 | 12 | 946.1 | -10.4 | 12 | 946.1 | 10.4 | 12 | 966.1 | -10.4 | 12 | 966.1 | 10.4 | 12 |
| 986.1 | -10.4 | 12 | 986.1 | 10.4 | 12 | 1006.1 | -10.4 | 12 | 1006.1 | 10.4 | 12 | 1026.1 | -10.4 | 12 |
| 1026.1 | 10.4 | 12 | 1046.1 | -10.4 | 12 | 1046.1 | 10.4 | 12 | 1066.1 | -10.4 | 12 | 1066.1 | 10.4 | 12 |
| 1086.1 | -10.4 | 12 | 1086.1 | 10.4 | 12 | 1106.1 | -10.4 | 12 | 1106.1 | 10.4 | 12 | 1126.1 | -10.4 | 12 |
| 1126.1 | 10.4 | 12 | 1146.1 | -10.4 | 12 | 1146.1 | 10.4 | 12 | 1166.1 | -10.4 | 12 | 1166.1 | 10.4 | 12 |
| 1186.1 | -10.4 | 12 | 1186.1 | 10.4 | 12 | 1206.1 | -10.4 | 12 | 1206.1 | 10.4 | 12 | 1226.1 | -10.4 | 12 |
| 1226.1 | 10.4 | 12 | 1246.1 | -10.4 | 12 | 1246.1 | 10.4 | 12 | 1266.1 | -10.4 | 12 | 1266.1 | 10.4 | 12 |
| 1286.1 | -10.4 | 12 | 1286.1 | 10.4 | 12 | 1306.1 | -10.4 | 12 | 1306.1 | 10.4 | 12 | 1326.1 | -10.4 | 12 |
| 1326.1 | 10.4 | 12 | 1346.1 | -10.4 | 12 | 1346.1 | 10.4 | 12 | 1366.1 | -10.4 | 12 | 1366.1 | 10.4 | 12 |
| 1386.1 | -10.4 | 12 | 1386.1 | 10.4 | 12 | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

X Y
630.0 17.5
630.0 96.9
665.0 96.9
665.0 17.5
1305.0 17.5
1305.0 96.9
1340.0 96.9
1340.0 17.5
1397.5 17.5
1397.5 -17.5
1340.0 -17.5
1340.0 -96.9
1305.0 -96.9
1305.0 -17.5
665.0 -17.5
665.0 -96.9
630.0 -96.9
630.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 835.5 | -10.5 | 10 |
| 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 |
| 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 |
| 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 |
| 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 |
| 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 |
| 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 |
| 695.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 |
| 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 |
| 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 |
| 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 |
| 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 |
| 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 | 646.1 | -10.4 | 12 |
| 646.1 | 10.4 | 12 | 666.1 | -10.4 | 12 | 666.1 | 10.4 | 12 | 686.1 | -10.4 | 12 | 686.1 | 10.4 | 12 |
| 706.1 | -10.4 | 12 | 706.1 | 10.4 | 12 | 726.1 | -10.4 | 12 | 726.1 | 10.4 | 12 | 746.1 | -10.4 | 12 |
| 746.1 | 10.4 | 12 | 766.1 | -10.4 | 12 | 766.1 | 10.4 | 12 | 786.1 | -10.4 | 12 | 786.1 | 10.4 | 12 |
| 806.1 | -10.4 | 12 | 806.1 | 10.4 | 12 | 826.1 | -10.4 | 12 | 826.1 | 10.4 | 12 | 846.1 | -10.4 | 12 |
| 846.1 | 10.4 | 12 | 866.1 | -10.4 | 12 | 866.1 | 10.4 | 12 | 886.1 | -10.4 | 12 | 886.1 | 10.4 | 12 |
| 906.1 | -10.4 | 12 | 906.1 | 10.4 | 12 | 926.1 | -10.4 | 12 | 926.1 | 10.4 | 12 | 946.1 | -10.4 | 12 |
| 946.1 | 10.4 | 12 | 966.1 | -10.4 | 12 | 966.1 | 10.4 | 12 | 986.1 | -10.4 | 12 | 986.1 | 10.4 | 12 |
| 1006.1 | -10.4 | 12 | 1006.1 | 10.4 | 12 | 1026.1 | -10.4 | 12 | 1026.1 | 10.4 | 12 | 1046.1 | -10.4 | 12 |
| 1046.1 | 10.4 | 12 | 1066.1 | -10.4 | 12 | 1066.1 | 10.4 | 12 | 1086.1 | -10.4 | 12 | 1086.1 | 10.4 | 12 |
| 1106.1 | -10.4 | 12 | 1106.1 | 10.4 | 12 | 1126.1 | -10.4 | 12 | 1126.1 | 10.4 | 12 | 1146.1 | -10.4 | 12 |
| 1146.1 | 10.4 | 12 | 1166.1 | -10.4 | 12 | 1166.1 | 10.4 | 12 | 1186.1 | -10.4 | 12 | 1186.1 | 10.4 | 12 |
| 1206.1 | -10.4 | 12 | 1206.1 | 10.4 | 12 | 1226.1 | -10.4 | 12 | 1226.1 | 10.4 | 12 | 1246.1 | -10.4 | 12 |
| 1246.1 | 10.4 | 12 | 1266.1 | -10.4 | 12 | 1266.1 | 10.4 | 12 | 1286.1 | -10.4 | 12 | 1286.1 | 10.4 | 12 |
| 1306.1 | -10.4 | 12 | 1306.1 | 10.4 | 12 | 1326.1 | -10.4 | 12 | 1326.1 | 10.4 | 12 | 1346.1 | -10.4 | 12 |
| 1346.1 | 10.4 | 12 | 1366.1 | -10.4 | 12 | 1366.1 | 10.4 | 12 | 1386.1 | -10.4 | 12 | 1386.1 | 10.4 | 12 |

Sezione a quota 135

Coordinate dei vertici

X Y
630.0 17.5
630.0 80.0
665.0 80.0
665.0 17.5
1305.0 17.5
1305.0 80.0

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

1340.0 80.0
1340.0 17.5
1397.5 17.5
1397.5 -17.5
1340.0 -17.5
1340.0 -80.0
1305.0 -80.0
1305.0 -17.5
665.0 -17.5
665.0 -80.0
630.0 -80.0
630.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 |
| 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 | 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 |
| 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 |
| 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 |
| 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 |
| 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 |
| 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 |
| 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 |
| 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 | 755.5 | 10.5 | 10 |
| 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 |
| 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 |
| 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 |
| 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 |
| 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 |
| 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 |
| 1375.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|--------|-------|
| 630.0 | 17.5 |
| 630.0 | 72.5 |
| 665.0 | 72.5 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 72.5 |
| 1340.0 | 72.5 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -72.5 |
| 1305.0 | -72.5 |
| 1305.0 | -17.5 |
| 665.0 | -17.5 |
| 665.0 | -72.5 |
| 630.0 | -72.5 |
| 630.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 |
| 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 | 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 |
| 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 |
| 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 |
| 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 |
| 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 |
| 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 |
| 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 |
| 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 | 755.5 | 10.5 | 10 |
| 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 |
| 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 |
| 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 |
| 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 |
| 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 |
| 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 |
| 1375.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|--------|-------|
| 630.0 | 17.5 |
| 630.0 | 38.8 |
| 665.0 | 38.8 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 38.8 |
| 1340.0 | 38.8 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -38.8 |
| 1305.0 | -38.8 |
| 1305.0 | -17.5 |
| 665.0 | -17.5 |
| 665.0 | -38.8 |
| 630.0 | -38.8 |
| 630.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 |
| 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 | 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 |
| 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 |
| 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 |
| 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 |
| 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 |
| 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 |
| 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|------|----|--------|------|----|--------|------|----|--------|------|----|--------|------|----|
| 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 | 755.5 | 10.5 | 10 |
| 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 |
| 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 |
| 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 |
| 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 |
| 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 |
| 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 |
| 1375.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|--------|-------|
| 630.0 | -17.5 |
| 630.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 |
| 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 | 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 |
| 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 |
| 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 |
| 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 |
| 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 |
| 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 |
| 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 |
| 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 | 755.5 | 10.5 | 10 |
| 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 |
| 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 |
| 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 |
| 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 |
| 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 |
| 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 |
| 1375.5 | 10.5 | 10 | | | | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fd | ftcd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|-----|------|-----|
| 188 | 14 | 283 | 243 | 495 | 768 | 2 | 243 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|----------|---------|--------|--------|--------|-----------------|
| 0 | -2212882 | 4081643 | -60204 | -60204 | -60204 | 6.8592 3 SLV |
| 0 | -2447189 | 2994421 | -35818 | -43721 | -35818 | 5.3215 14 SLV |
| 68 | -198082 | 4731741 | -54871 | -54871 | -54871 | 107.8445 1 SLV |
| 68 | -429412 | 3701087 | -31594 | -39424 | -31594 | 109.8442 14 SLV |
| 135 | 741384 | 2684696 | -49510 | -49510 | -49510 | 60.6390 2 SLV |
| 135 | 655644 | 1836273 | -42103 | -36119 | -42103 | 71.4095 4 SLV |
| 165 | 929709 | 1953041 | -46493 | -46493 | -46493 | 42.1552 2 SLV |
| 165 | 770521 | 1706236 | -28970 | -33925 | -28970 | 45.6511 14 SLV |
| 300 | 812129 | 89521 | -19777 | -19777 | -19777 | 12.3298 3 SLV |
| 300 | 888783 | 98840 | -10036 | -13728 | -10036 | 8.8089 14 SLV |
| 435 | -72820 | -384944 | -2480 | -2480 | -2480 | 80.1089 3 SLV |
| 435 | -78330 | 440484 | 829 | -1125 | 829 | 36.6687 15 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|----------------|
| 0 | -57335 | -2258541 | 39.3923 8 SLV |
| 68 | -50389 | -2857745 | 56.7134 8 SLV |
| 135 | -44073 | -2679959 | 60.8066 8 SLV |
| 165 | -41113 | -2600943 | 63.2636 8 SLV |
| 300 | -18864 | -2245371 | 119.0291 8 SLV |
| 435 | -3410 | -2021493 | 592.8281 4 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrzd comb |
|-------|---------|--------|----------------|
| 0 | 1.00 | -2552 | 891141 2 SLV |
| 0 | 1.00 | -27919 | 889813 12 SLV |
| 68 | 1.00 | 1005 | 890027 1 SLV |
| 68 | 1.00 | 27121 | 885738 5 SLV |
| 135 | 1.00 | -461 | 1020596 3 SLV |
| 135 | 1.00 | 27763 | 1016479 9 SLV |
| 165 | 1.00 | -10290 | 1020045 2 SLV |
| 165 | 1.00 | -32245 | 1018539 12 SLV |
| 300 | 1.00 | -4319 | 1014741 2 SLV |
| 300 | 1.00 | -22320 | 1014077 12 SLV |
| 435 | 1.00 | -3825 | 1011258 2 SLV |
| 435 | 1.00 | -13764 | 1011033 12 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd comb |
|-------|-------|--------|--------|--------|--------|---------------|
| 0 | 137.8 | 0.0034 | 0.0059 | -2552 | -60439 | 250932 2 SLV |
| 0 | 137.8 | 0.0034 | 0.0059 | -27919 | -53799 | 250932 12 SLV |
| 68 | 136.2 | 0.0055 | 0.0058 | 1005 | -54871 | 400496 1 SLV |
| 68 | 136.2 | 0.0055 | 0.0058 | 27121 | -33423 | 400496 5 SLV |
| 135 | 59.7 | 0.0055 | 0.0022 | -461 | -49246 | 460495 3 SLV |
| 135 | 59.7 | 0.0055 | 0.0022 | 27763 | -28662 | 460495 9 SLV |
| 165 | 59.7 | 0.0055 | 0.0022 | -10290 | -46493 | 460495 2 SLV |
| 165 | 59.7 | 0.0055 | 0.0022 | -32245 | -38961 | 460495 12 SLV |
| 300 | 59.7 | 0.0055 | 0.0022 | -4319 | -19975 | 460495 2 SLV |
| 300 | 59.7 | 0.0055 | 0.0022 | -22320 | -16655 | 460495 12 SLV |
| 435 | 59.7 | 0.0047 | 0.0022 | -3825 | -2557 | 394694 2 SLV |
| 435 | 59.7 | 0.0047 | 0.0022 | -13764 | -1431 | 394694 12 SLV |

Pannello P4

Parete fra le coordinate in pianta (0;648) (1385;648)

da quota -40 a quota 568

Valori in daN, cm

C32/40: rck 400

fyk 4500

Verifica di stato limite ultimo

| nod | sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|-----|-----|---|---|-----|-----|----|----|------|------|---|---|----|----|
|-----|-----|---|---|-----|-----|----|----|------|------|---|---|----|----|

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|------|---|-----|----|-----|-----|-----|-----|--------|----|-----|-------|--------|---------|----------|
| 4742 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 34.974 | 13 | SLV | -3001 | 53474 | -104956 | -1870210 |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.275 | 13 | SLV | 5504 | 786009 | 7015 | -1001849 |
| 5043 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 6.104 | 13 | SLV | -3385 | 130180 | -20665 | -794653 |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.248 | 13 | SLV | 5329 | 807084 | 6648 | -1006879 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|---|----|----------|---------|--------|---|--------|----------|---------|------|------|-----|---|----|
| 4742 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -3.1 | 1 | ra | -3.38E03 | 3.62E04 | 14.3 | 1 | ra | -3.38E03 | 3.62E04 | 0.00 | 0.8 | 0.0 | 1 | ra |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -49.0 | 1 | ra | 3.23E03 | 4.74E05 | 2266.6 | 1 | ra | 3.23E03 | 4.74E05 | 0.00 | 23.3 | 0.0 | 1 | ra |
| 5043 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -10.5 | 1 | ra | -3.67E03 | 8.43E04 | 325.5 | 1 | ra | -3.67E03 | 8.43E04 | 0.00 | 3.0 | 0.0 | 1 | ra |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -49.5 | 1 | ra | 2.99E03 | 4.80E05 | 2276.3 | 1 | ra | 2.99E03 | 4.80E05 | 0.00 | 23.5 | 0.0 | 1 | ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|---|----|----------|---------|--------|---|--------|----------|---------|------|------|-----|---|----|
| 4742 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -2.8 | 3 | fr | -3.25E03 | 3.33E04 | 10.2 | 3 | fr | -3.25E03 | 3.33E04 | 0.00 | 0.7 | 0.0 | 1 | fr |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -44.3 | 3 | fr | 2.90E03 | 4.28E05 | 2047.2 | 3 | fr | 2.90E03 | 4.28E05 | 0.00 | 21.1 | 0.0 | 1 | fr |
| 5043 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -9.6 | 3 | fr | -3.46E03 | 7.74E04 | 287.6 | 3 | fr | -3.46E03 | 7.74E04 | 0.00 | 2.8 | 0.0 | 1 | fr |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -44.8 | 3 | fr | 2.70E03 | 4.34E05 | 2058.0 | 3 | fr | 2.70E03 | 4.34E05 | 0.00 | 21.3 | 0.0 | 1 | fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|---|----|----------|---------|--------|---|--------|----------|----------|------|------|-----|---|----|
| 4742 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -2.1 | 1 | q. | -3.14E03 | 2.49E04 | -4.3 | 1 | q. | -1.37E03 | -3.21E03 | 0.00 | 0.3 | 0.0 | 1 | q. |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -29.9 | 1 | q. | 1.89E03 | 2.90E05 | 1380.2 | 1 | q. | 1.89E03 | 2.90E05 | 0.00 | 14.2 | 0.0 | 1 | q. |
| 5043 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -5.9 | 1 | q. | -3.24E03 | 5.42E04 | 116.6 | 1 | q. | -3.24E03 | 5.42E04 | 0.00 | 1.7 | 0.0 | 1 | q. |
| | v | 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -30.3 | 1 | q. | 1.78E03 | 2.94E05 | 1391.3 | 1 | q. | 1.78E03 | 2.94E05 | 0.00 | 14.4 | 0.0 | 1 | q. |

Verifica dei pannelli

Pannello : Pannello da Filo 3 a Filo 13

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| 0.0 | 17.5 |
| 0.0 | 40.0 |
| 35.0 | 40.0 |
| 35.0 | 17.5 |
| 675.0 | 17.5 |
| 675.0 | 40.0 |
| 710.0 | 40.0 |
| 710.0 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 40.0 |
| 1385.0 | 40.0 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -40.0 |
| 1350.0 | -40.0 |
| 1350.0 | -17.5 |
| 35.0 | -17.5 |
| 35.0 | -40.0 |
| 0.0 | -40.0 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 55.3 | -10.5 | 10 | 75.3 | -10.5 | 10 | 95.3 | -10.5 | 10 |
| 115.3 | -10.5 | 10 | 135.3 | -10.5 | 10 | 155.3 | -10.5 | 10 | 175.3 | -10.5 | 10 | 195.3 | -10.5 | 10 |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 255.3 | -10.5 | 10 | 275.3 | -10.5 | 10 | 295.3 | -10.5 | 10 |
| 315.3 | -10.5 | 10 | 335.3 | -10.5 | 10 | 355.3 | -10.5 | 10 | 375.3 | -10.5 | 10 | 395.3 | -10.5 | 10 |
| 415.3 | -10.5 | 10 | 435.3 | -10.5 | 10 | 455.3 | -10.5 | 10 | 475.3 | -10.5 | 10 | 495.3 | -10.5 | 10 |
| 515.3 | -10.5 | 10 | 535.3 | -10.5 | 10 | 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 |
| 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 | 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 |
| 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 | 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 795.3 | -10.5 | 10 |
| 815.3 | -10.5 | 10 | 835.3 | -10.5 | 10 | 855.3 | -10.5 | 10 | 875.3 | -10.5 | 10 | 895.3 | -10.5 | 10 |
| 915.3 | -10.5 | 10 | 935.3 | -10.5 | 10 | 955.3 | -10.5 | 10 | 975.3 | -10.5 | 10 | 995.3 | -10.5 | 10 |
| 1015.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 |
| 1115.3 | -10.5 | 10 | 1135.3 | -10.5 | 10 | 1155.3 | -10.5 | 10 | 1175.3 | -10.5 | 10 | 1195.3 | -10.5 | 10 |
| 1215.3 | -10.5 | 10 | 1235.3 | -10.5 | 10 | 1255.3 | -10.5 | 10 | 1275.3 | -10.5 | 10 | 1295.3 | -10.5 | 10 |
| 1315.3 | -10.5 | 10 | 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1395.3 | -10.5 | 10 |
| 35.3 | 10.5 | 10 | 55.3 | 10.5 | 10 | 75.3 | 10.5 | 10 | 95.3 | 10.5 | 10 | 115.3 | 10.5 | 10 |
| 135.3 | 10.5 | 10 | 155.3 | 10.5 | 10 | 175.3 | 10.5 | 10 | 195.3 | 10.5 | 10 | 215.3 | 10.5 | 10 |
| 235.3 | 10.5 | 10 | 255.3 | 10.5 | 10 | 275.3 | 10.5 | 10 | 295.3 | 10.5 | 10 | 315.3 | 10.5 | 10 |
| 335.3 | 10.5 | 10 | 355.3 | 10.5 | 10 | 375.3 | 10.5 | 10 | 395.3 | 10.5 | 10 | 415.3 | 10.5 | 10 |
| 435.3 | 10.5 | 10 | 455.3 | 10.5 | 10 | 475.3 | 10.5 | 10 | 495.3 | 10.5 | 10 | 515.3 | 10.5 | 10 |
| 535.3 | 10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | 795.3 | 10.5 | 10 | 815.3 | 10.5 | 10 |
| 835.3 | 10.5 | 10 | 855.3 | 10.5 | 10 | 875.3 | 10.5 | 10 | 895.3 | 10.5 | 10 | 915.3 | 10.5 | 10 |
| 935.3 | 10.5 | 10 | 955.3 | 10.5 | 10 | 975.3 | 10.5 | 10 | 995.3 | 10.5 | 10 | 1015.3 | 10.5 | 10 |
| 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 | 1115.3 | 10.5 | 10 |
| 1135.3 | 10.5 | 10 | 1155.3 | 10.5 | 10 | 1175.3 | 10.5 | 10 | 1195.3 | 10.5 | 10 | 1215.3 | 10.5 | 10 |
| 1235.3 | 10.5 | 10 | 1255.3 | 10.5 | 10 | 1275.3 | 10.5 | 10 | 1295.3 | 10.5 | 10 | 1315.3 | 10.5 | 10 |
| 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 | 1375.3 | 10.5 | 10 | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|--------|
| 0.0 | 17.5 |
| 0.0 | 107.5 |
| 35.0 | 107.5 |
| 35.0 | 17.5 |
| 675.0 | 17.5 |
| 675.0 | 107.5 |
| 710.0 | 107.5 |
| 710.0 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 107.5 |
| 1385.0 | 107.5 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -107.5 |
| 1350.0 | -107.5 |
| 1350.0 | -17.5 |
| 35.0 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

35.0 -107.5
0.0 -107.5
0.0 -17.5

Armatore verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 55.3 | -10.5 | 10 | 75.3 | -10.5 | 10 | 95.3 | -10.5 | 10 |
| 115.3 | -10.5 | 10 | 135.3 | -10.5 | 10 | 155.3 | -10.5 | 10 | 175.3 | -10.5 | 10 | 195.3 | -10.5 | 10 |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 255.3 | -10.5 | 10 | 275.3 | -10.5 | 10 | 295.3 | -10.5 | 10 |
| 315.3 | -10.5 | 10 | 335.3 | -10.5 | 10 | 355.3 | -10.5 | 10 | 375.3 | -10.5 | 10 | 395.3 | -10.5 | 10 |
| 415.3 | -10.5 | 10 | 435.3 | -10.5 | 10 | 455.3 | -10.5 | 10 | 475.3 | -10.5 | 10 | 495.3 | -10.5 | 10 |
| 515.3 | -10.5 | 10 | 535.3 | -10.5 | 10 | 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 |
| 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 | 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 |
| 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 | 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 795.3 | -10.5 | 10 |
| 815.3 | -10.5 | 10 | 835.3 | -10.5 | 10 | 855.3 | -10.5 | 10 | 875.3 | -10.5 | 10 | 895.3 | -10.5 | 10 |
| 915.3 | -10.5 | 10 | 935.3 | -10.5 | 10 | 955.3 | -10.5 | 10 | 975.3 | -10.5 | 10 | 995.3 | -10.5 | 10 |
| 1015.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 |
| 1115.3 | -10.5 | 10 | 1135.3 | -10.5 | 10 | 1155.3 | -10.5 | 10 | 1175.3 | -10.5 | 10 | 1195.3 | -10.5 | 10 |
| 1215.3 | -10.5 | 10 | 1235.3 | -10.5 | 10 | 1255.3 | -10.5 | 10 | 1275.3 | -10.5 | 10 | 1295.3 | -10.5 | 10 |
| 1315.3 | -10.5 | 10 | 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1395.3 | -10.5 | 10 |
| 35.3 | 10.5 | 10 | 55.3 | 10.5 | 10 | 75.3 | 10.5 | 10 | 95.3 | 10.5 | 10 | 115.3 | 10.5 | 10 |
| 135.3 | 10.5 | 10 | 155.3 | 10.5 | 10 | 175.3 | 10.5 | 10 | 195.3 | 10.5 | 10 | 215.3 | 10.5 | 10 |
| 235.3 | 10.5 | 10 | 255.3 | 10.5 | 10 | 275.3 | 10.5 | 10 | 295.3 | 10.5 | 10 | 315.3 | 10.5 | 10 |
| 335.3 | 10.5 | 10 | 355.3 | 10.5 | 10 | 375.3 | 10.5 | 10 | 395.3 | 10.5 | 10 | 415.3 | 10.5 | 10 |
| 435.3 | 10.5 | 10 | 455.3 | 10.5 | 10 | 475.3 | 10.5 | 10 | 495.3 | 10.5 | 10 | 515.3 | 10.5 | 10 |
| 535.3 | 10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | 795.3 | 10.5 | 10 | 815.3 | 10.5 | 10 |
| 835.3 | 10.5 | 10 | 855.3 | 10.5 | 10 | 875.3 | 10.5 | 10 | 895.3 | 10.5 | 10 | 915.3 | 10.5 | 10 |
| 935.3 | 10.5 | 10 | 955.3 | 10.5 | 10 | 975.3 | 10.5 | 10 | 995.3 | 10.5 | 10 | 1015.3 | 10.5 | 10 |
| 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 | 1115.3 | 10.5 | 10 |
| 1135.3 | 10.5 | 10 | 1155.3 | 10.5 | 10 | 1175.3 | 10.5 | 10 | 1195.3 | 10.5 | 10 | 1215.3 | 10.5 | 10 |
| 1235.3 | 10.5 | 10 | 1255.3 | 10.5 | 10 | 1275.3 | 10.5 | 10 | 1295.3 | 10.5 | 10 | 1315.3 | 10.5 | 10 |
| 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 | 1375.3 | 10.5 | 10 | | | | | | |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|--------|--------|
| 0.0 | 17.5 |
| 0.0 | 108.3 |
| 35.0 | 108.3 |
| 35.0 | 17.5 |
| 675.0 | 17.5 |
| 675.0 | 108.3 |
| 710.0 | 108.3 |
| 710.0 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 108.3 |
| 1385.0 | 108.3 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -108.3 |
| 1350.0 | -108.3 |
| 1350.0 | -17.5 |
| 35.0 | -17.5 |
| 35.0 | -108.3 |
| 0.0 | -108.3 |
| 0.0 | -17.5 |

Armatore verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 55.3 | -10.5 | 10 | 75.3 | -10.5 | 10 | 95.3 | -10.5 | 10 |
| 115.3 | -10.5 | 10 | 135.3 | -10.5 | 10 | 155.3 | -10.5 | 10 | 175.3 | -10.5 | 10 | 195.3 | -10.5 | 10 |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 255.3 | -10.5 | 10 | 275.3 | -10.5 | 10 | 295.3 | -10.5 | 10 |
| 315.3 | -10.5 | 10 | 335.3 | -10.5 | 10 | 355.3 | -10.5 | 10 | 375.3 | -10.5 | 10 | 395.3 | -10.5 | 10 |
| 415.3 | -10.5 | 10 | 435.3 | -10.5 | 10 | 455.3 | -10.5 | 10 | 475.3 | -10.5 | 10 | 495.3 | -10.5 | 10 |
| 515.3 | -10.5 | 10 | 535.3 | -10.5 | 10 | 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 |
| 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 | 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 |
| 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 | 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 795.3 | -10.5 | 10 |
| 815.3 | -10.5 | 10 | 835.3 | -10.5 | 10 | 855.3 | -10.5 | 10 | 875.3 | -10.5 | 10 | 895.3 | -10.5 | 10 |
| 915.3 | -10.5 | 10 | 935.3 | -10.5 | 10 | 955.3 | -10.5 | 10 | 975.3 | -10.5 | 10 | 995.3 | -10.5 | 10 |
| 1015.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 |
| 1115.3 | -10.5 | 10 | 1135.3 | -10.5 | 10 | 1155.3 | -10.5 | 10 | 1175.3 | -10.5 | 10 | 1195.3 | -10.5 | 10 |
| 1215.3 | -10.5 | 10 | 1235.3 | -10.5 | 10 | 1255.3 | -10.5 | 10 | 1275.3 | -10.5 | 10 | 1295.3 | -10.5 | 10 |
| 1315.3 | -10.5 | 10 | 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1395.3 | -10.5 | 10 |
| 35.3 | 10.5 | 10 | 55.3 | 10.5 | 10 | 75.3 | 10.5 | 10 | 95.3 | 10.5 | 10 | 115.3 | 10.5 | 10 |
| 135.3 | 10.5 | 10 | 155.3 | 10.5 | 10 | 175.3 | 10.5 | 10 | 195.3 | 10.5 | 10 | 215.3 | 10.5 | 10 |
| 235.3 | 10.5 | 10 | 255.3 | 10.5 | 10 | 275.3 | 10.5 | 10 | 295.3 | 10.5 | 10 | 315.3 | 10.5 | 10 |
| 335.3 | 10.5 | 10 | 355.3 | 10.5 | 10 | 375.3 | 10.5 | 10 | 395.3 | 10.5 | 10 | 415.3 | 10.5 | 10 |
| 435.3 | 10.5 | 10 | 455.3 | 10.5 | 10 | 475.3 | 10.5 | 10 | 495.3 | 10.5 | 10 | 515.3 | 10.5 | 10 |
| 535.3 | 10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | 795.3 | 10.5 | 10 | 815.3 | 10.5 | 10 |
| 835.3 | 10.5 | 10 | 855.3 | 10.5 | 10 | 875.3 | 10.5 | 10 | 895.3 | 10.5 | 10 | 915.3 | 10.5 | 10 |
| 935.3 | 10.5 | 10 | 955.3 | 10.5 | 10 | 975.3 | 10.5 | 10 | 995.3 | 10.5 | 10 | 1015.3 | 10.5 | 10 |
| 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 | 1115.3 | 10.5 | 10 |
| 1135.3 | 10.5 | 10 | 1155.3 | 10.5 | 10 | 1175.3 | 10.5 | 10 | 1195.3 | 10.5 | 10 | 1215.3 | 10.5 | 10 |
| 1235.3 | 10.5 | 10 | 1255.3 | 10.5 | 10 | 1275.3 | 10.5 | 10 | 1295.3 | 10.5 | 10 | 1315.3 | 10.5 | 10 |
| 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 | 1375.3 | 10.5 | 10 | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|--------|-------|
| 0.0 | 17.5 |
| 0.0 | 100.8 |
| 35.0 | 100.8 |
| 35.0 | 17.5 |
| 675.0 | 17.5 |
| 675.0 | 100.8 |
| 710.0 | 100.8 |
| 710.0 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 100.8 |
| 1385.0 | 100.8 |
| 1385.0 | 17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

1385.0 -17.5
1385.0 -100.8
1350.0 -100.8
1350.0 -17.5
35.0 -17.5
35.0 -100.8
0.0 -100.8
0.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 55.3 | -10.5 | 10 | 75.3 | -10.5 | 10 | 95.3 | -10.5 | 10 |
| 115.3 | -10.5 | 10 | 135.3 | -10.5 | 10 | 155.3 | -10.5 | 10 | 175.3 | -10.5 | 10 | 195.3 | -10.5 | 10 |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 255.3 | -10.5 | 10 | 275.3 | -10.5 | 10 | 295.3 | -10.5 | 10 |
| 315.3 | -10.5 | 10 | 335.3 | -10.5 | 10 | 355.3 | -10.5 | 10 | 375.3 | -10.5 | 10 | 395.3 | -10.5 | 10 |
| 415.3 | -10.5 | 10 | 435.3 | -10.5 | 10 | 455.3 | -10.5 | 10 | 475.3 | -10.5 | 10 | 495.3 | -10.5 | 10 |
| 515.3 | -10.5 | 10 | 535.3 | -10.5 | 10 | 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 |
| 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 | 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 |
| 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 | 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 795.3 | -10.5 | 10 |
| 815.3 | -10.5 | 10 | 835.3 | -10.5 | 10 | 855.3 | -10.5 | 10 | 875.3 | -10.5 | 10 | 895.3 | -10.5 | 10 |
| 915.3 | -10.5 | 10 | 935.3 | -10.5 | 10 | 955.3 | -10.5 | 10 | 975.3 | -10.5 | 10 | 995.3 | -10.5 | 10 |
| 1015.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 |
| 1115.3 | -10.5 | 10 | 1135.3 | -10.5 | 10 | 1155.3 | -10.5 | 10 | 1175.3 | -10.5 | 10 | 1195.3 | -10.5 | 10 |
| 1215.3 | -10.5 | 10 | 1235.3 | -10.5 | 10 | 1255.3 | -10.5 | 10 | 1275.3 | -10.5 | 10 | 1295.3 | -10.5 | 10 |
| 1315.3 | -10.5 | 10 | 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 15.3 | 10.5 | 10 |
| 35.3 | 10.5 | 10 | 55.3 | 10.5 | 10 | 75.3 | 10.5 | 10 | 95.3 | 10.5 | 10 | 115.3 | 10.5 | 10 |
| 135.3 | 10.5 | 10 | 155.3 | 10.5 | 10 | 175.3 | 10.5 | 10 | 195.3 | 10.5 | 10 | 215.3 | 10.5 | 10 |
| 235.3 | 10.5 | 10 | 255.3 | 10.5 | 10 | 275.3 | 10.5 | 10 | 295.3 | 10.5 | 10 | 315.3 | 10.5 | 10 |
| 335.3 | 10.5 | 10 | 355.3 | 10.5 | 10 | 375.3 | 10.5 | 10 | 395.3 | 10.5 | 10 | 415.3 | 10.5 | 10 |
| 435.3 | 10.5 | 10 | 455.3 | 10.5 | 10 | 475.3 | 10.5 | 10 | 495.3 | 10.5 | 10 | 515.3 | 10.5 | 10 |
| 535.3 | 10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | 795.3 | 10.5 | 10 | 815.3 | 10.5 | 10 |
| 835.3 | 10.5 | 10 | 855.3 | 10.5 | 10 | 875.3 | 10.5 | 10 | 895.3 | 10.5 | 10 | 915.3 | 10.5 | 10 |
| 935.3 | 10.5 | 10 | 955.3 | 10.5 | 10 | 975.3 | 10.5 | 10 | 995.3 | 10.5 | 10 | 1015.3 | 10.5 | 10 |
| 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 | 1115.3 | 10.5 | 10 |
| 1135.3 | 10.5 | 10 | 1155.3 | 10.5 | 10 | 1175.3 | 10.5 | 10 | 1195.3 | 10.5 | 10 | 1215.3 | 10.5 | 10 |
| 1235.3 | 10.5 | 10 | 1255.3 | 10.5 | 10 | 1275.3 | 10.5 | 10 | 1295.3 | 10.5 | 10 | 1315.3 | 10.5 | 10 |
| 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 | 1375.3 | 10.5 | 10 | | | | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|--------|-------|
| 0.0 | 17.5 |
| 0.0 | 67.0 |
| 35.0 | 67.0 |
| 35.0 | 17.5 |
| 675.0 | 17.5 |
| 675.0 | 67.0 |
| 710.0 | 67.0 |
| 710.0 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 67.0 |
| 1385.0 | 67.0 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -67.0 |
| 1350.0 | -67.0 |
| 1350.0 | -17.5 |
| 35.0 | -17.5 |
| 35.0 | -67.0 |
| 0.0 | -67.0 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 55.3 | -10.5 | 10 | 75.3 | -10.5 | 10 | 95.3 | -10.5 | 10 |
| 115.3 | -10.5 | 10 | 135.3 | -10.5 | 10 | 155.3 | -10.5 | 10 | 175.3 | -10.5 | 10 | 195.3 | -10.5 | 10 |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 255.3 | -10.5 | 10 | 275.3 | -10.5 | 10 | 295.3 | -10.5 | 10 |
| 315.3 | -10.5 | 10 | 335.3 | -10.5 | 10 | 355.3 | -10.5 | 10 | 375.3 | -10.5 | 10 | 395.3 | -10.5 | 10 |
| 415.3 | -10.5 | 10 | 435.3 | -10.5 | 10 | 455.3 | -10.5 | 10 | 475.3 | -10.5 | 10 | 495.3 | -10.5 | 10 |
| 515.3 | -10.5 | 10 | 535.3 | -10.5 | 10 | 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 |
| 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 | 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 |
| 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 | 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 795.3 | -10.5 | 10 |
| 815.3 | -10.5 | 10 | 835.3 | -10.5 | 10 | 855.3 | -10.5 | 10 | 875.3 | -10.5 | 10 | 895.3 | -10.5 | 10 |
| 915.3 | -10.5 | 10 | 935.3 | -10.5 | 10 | 955.3 | -10.5 | 10 | 975.3 | -10.5 | 10 | 995.3 | -10.5 | 10 |
| 1015.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 |
| 1115.3 | -10.5 | 10 | 1135.3 | -10.5 | 10 | 1155.3 | -10.5 | 10 | 1175.3 | -10.5 | 10 | 1195.3 | -10.5 | 10 |
| 1215.3 | -10.5 | 10 | 1235.3 | -10.5 | 10 | 1255.3 | -10.5 | 10 | 1275.3 | -10.5 | 10 | 1295.3 | -10.5 | 10 |
| 1315.3 | -10.5 | 10 | 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 15.3 | 10.5 | 10 |
| 35.3 | 10.5 | 10 | 55.3 | 10.5 | 10 | 75.3 | 10.5 | 10 | 95.3 | 10.5 | 10 | 115.3 | 10.5 | 10 |
| 135.3 | 10.5 | 10 | 155.3 | 10.5 | 10 | 175.3 | 10.5 | 10 | 195.3 | 10.5 | 10 | 215.3 | 10.5 | 10 |
| 235.3 | 10.5 | 10 | 255.3 | 10.5 | 10 | 275.3 | 10.5 | 10 | 295.3 | 10.5 | 10 | 315.3 | 10.5 | 10 |
| 335.3 | 10.5 | 10 | 355.3 | 10.5 | 10 | 375.3 | 10.5 | 10 | 395.3 | 10.5 | 10 | 415.3 | 10.5 | 10 |
| 435.3 | 10.5 | 10 | 455.3 | 10.5 | 10 | 475.3 | 10.5 | 10 | 495.3 | 10.5 | 10 | 515.3 | 10.5 | 10 |
| 535.3 | 10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | 795.3 | 10.5 | 10 | 815.3 | 10.5 | 10 |
| 835.3 | 10.5 | 10 | 855.3 | 10.5 | 10 | 875.3 | 10.5 | 10 | 895.3 | 10.5 | 10 | 915.3 | 10.5 | 10 |
| 935.3 | 10.5 | 10 | 955.3 | 10.5 | 10 | 975.3 | 10.5 | 10 | 995.3 | 10.5 | 10 | 1015.3 | 10.5 | 10 |
| 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 | 1115.3 | 10.5 | 10 |
| 1135.3 | 10.5 | 10 | 1155.3 | 10.5 | 10 | 1175.3 | 10.5 | 10 | 1195.3 | 10.5 | 10 | 1215.3 | 10.5 | 10 |
| 1235.3 | 10.5 | 10 | 1255.3 | 10.5 | 10 | 1275.3 | 10.5 | 10 | 1295.3 | 10.5 | 10 | 1315.3 | 10.5 | 10 |
| 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 | 1375.3 | 10.5 | 10 | | | | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|--------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

1335.3 10.5 10 1355.3 10.5 10 1375.3 10.5 10

Sezione a quota 540
Coordinate dei vertici
X Y
0.0 -17.5
0.0 17.5
1385.0 17.5
1385.0 -17.5

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 55.3 | -10.5 | 10 | 75.3 | -10.5 | 10 | 95.3 | -10.5 | 10 |
| 115.3 | -10.5 | 10 | 135.3 | -10.5 | 10 | 155.3 | -10.5 | 10 | 175.3 | -10.5 | 10 | 195.3 | -10.5 | 10 |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 255.3 | -10.5 | 10 | 275.3 | -10.5 | 10 | 295.3 | -10.5 | 10 |
| 315.3 | -10.5 | 10 | 335.3 | -10.5 | 10 | 355.3 | -10.5 | 10 | 375.3 | -10.5 | 10 | 395.3 | -10.5 | 10 |
| 415.3 | -10.5 | 10 | 435.3 | -10.5 | 10 | 455.3 | -10.5 | 10 | 475.3 | -10.5 | 10 | 495.3 | -10.5 | 10 |
| 515.3 | -10.5 | 10 | 535.3 | -10.5 | 10 | 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 |
| 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 | 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 |
| 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 | 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 795.3 | -10.5 | 10 |
| 815.3 | -10.5 | 10 | 835.3 | -10.5 | 10 | 855.3 | -10.5 | 10 | 875.3 | -10.5 | 10 | 895.3 | -10.5 | 10 |
| 915.3 | -10.5 | 10 | 935.3 | -10.5 | 10 | 955.3 | -10.5 | 10 | 975.3 | -10.5 | 10 | 995.3 | -10.5 | 10 |
| 1015.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 |
| 1115.3 | -10.5 | 10 | 1135.3 | -10.5 | 10 | 1155.3 | -10.5 | 10 | 1175.3 | -10.5 | 10 | 1195.3 | -10.5 | 10 |
| 1215.3 | -10.5 | 10 | 1235.3 | -10.5 | 10 | 1255.3 | -10.5 | 10 | 1275.3 | -10.5 | 10 | 1295.3 | -10.5 | 10 |
| 1315.3 | -10.5 | 10 | 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1395.3 | -10.5 | 10 |
| 35.3 | 10.5 | 10 | 55.3 | 10.5 | 10 | 75.3 | 10.5 | 10 | 95.3 | 10.5 | 10 | 115.3 | 10.5 | 10 |
| 135.3 | 10.5 | 10 | 155.3 | 10.5 | 10 | 175.3 | 10.5 | 10 | 195.3 | 10.5 | 10 | 215.3 | 10.5 | 10 |
| 235.3 | 10.5 | 10 | 255.3 | 10.5 | 10 | 275.3 | 10.5 | 10 | 295.3 | 10.5 | 10 | 315.3 | 10.5 | 10 |
| 335.3 | 10.5 | 10 | 355.3 | 10.5 | 10 | 375.3 | 10.5 | 10 | 395.3 | 10.5 | 10 | 415.3 | 10.5 | 10 |
| 435.3 | 10.5 | 10 | 455.3 | 10.5 | 10 | 475.3 | 10.5 | 10 | 495.3 | 10.5 | 10 | 515.3 | 10.5 | 10 |
| 535.3 | 10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | 795.3 | 10.5 | 10 | 815.3 | 10.5 | 10 |
| 835.3 | 10.5 | 10 | 855.3 | 10.5 | 10 | 875.3 | 10.5 | 10 | 895.3 | 10.5 | 10 | 915.3 | 10.5 | 10 |
| 935.3 | 10.5 | 10 | 955.3 | 10.5 | 10 | 975.3 | 10.5 | 10 | 995.3 | 10.5 | 10 | 1015.3 | 10.5 | 10 |
| 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 | 1115.3 | 10.5 | 10 |
| 1135.3 | 10.5 | 10 | 1155.3 | 10.5 | 10 | 1175.3 | 10.5 | 10 | 1195.3 | 10.5 | 10 | 1215.3 | 10.5 | 10 |
| 1235.3 | 10.5 | 10 | 1255.3 | 10.5 | 10 | 1275.3 | 10.5 | 10 | 1295.3 | 10.5 | 10 | 1315.3 | 10.5 | 10 |
| 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 | 1375.3 | 10.5 | 10 | | | | | | |

Verifica eseguita con comportamento non dissipativo
Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura
fed fctd Hcr q.Hcr hw Lw n.p. hs
188 14 238 198 608 1385 3 198

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|----------|---------|---------|---------|---------|----------------|
| 0 | 357052 | 7846347 | -136879 | -136879 | -136879 | 59.1406 1 SLV |
| 0 | 866199 | 6012729 | -101696 | -101636 | -101696 | 47.4759 7 SLV |
| 68 | 484324 | 6094751 | -120260 | -120260 | -120260 | 83.9053 2 SLV |
| 68 | 670021 | 4408691 | -91809 | -88731 | -91809 | 109.9065 7 SLV |
| 135 | -1473002 | 3364787 | -112469 | -112469 | -112469 | 55.6535 1 SLV |
| 135 | -1598807 | 3809929 | -81620 | -79165 | -81620 | 53.5045 2 SLV |
| 165 | -1534985 | 1619924 | -72843 | -72843 | -72843 | 50.5498 1 SLV |
| 165 | -1585648 | 3972652 | -55351 | -53166 | -55351 | 41.6766 2 SLV |
| 300 | 1023185 | 3801603 | -63675 | -63675 | -63675 | 55.1675 1 SLV |
| 300 | 1113935 | 6231150 | -48770 | -48880 | -48770 | 39.8282 2 SLV |
| 435 | 380813 | 4633933 | -45070 | -45070 | -45070 | 84.8380 1 SLV |
| 435 | 615506 | 7550920 | -30838 | -33547 | -30838 | 20.7806 2 SLV |
| 455 | 286790 | 2684657 | -48558 | -48558 | -48558 | 113.2601 2 SLV |
| 455 | 510109 | 4959214 | -31498 | -32452 | -31498 | 36.1307 2 SLV |
| 498 | 224018 | 2525787 | -40189 | -40189 | -40189 | 138.9325 2 SLV |
| 498 | 386041 | 4053902 | -24276 | -26014 | -24276 | 47.4063 2 SLV |
| 540 | 58632 | 690872 | -34373 | -34373 | -34373 | 224.5927 2 SLV |
| 540 | 81391 | 1044443 | -20970 | -21028 | -20970 | 314.6540 2 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|---------|-------------------|-----------------|
| 0 | -104114 | -3944215 | 37.8835 5 SLV |
| 68 | -91809 | -4833146 | 52.6435 7 SLV |
| 135 | -83739 | -4843023 | 57.8348 8 SLV |
| 165 | -56766 | -4744253 | 83.5757 8 SLV |
| 300 | -51345 | -4299788 | 83.7424 4 SLV |
| 435 | -40171 | -3647905 | 90.8088 11 SLV |
| 455 | -38493 | -3647905 | 94.7690 8 SLV |
| 498 | -31683 | -3647905 | 115.1373 12 SLV |
| 540 | -23049 | -3647905 | 158.2643 8 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | VrEd comb |
|-------|---------|---------|----------------|
| 0 | 1.00 | -35720 | 1851014 3 SLV |
| 0 | 1.00 | -117000 | 1842784 16 SLV |
| 68 | 1.00 | -39946 | 1847618 3 SLV |
| 68 | 1.00 | -117820 | 1840507 16 SLV |
| 135 | 1.00 | -36001 | 1846081 3 SLV |
| 135 | 1.00 | -110281 | 1839309 16 SLV |
| 165 | 1.00 | -35766 | 1838554 3 SLV |
| 165 | 1.00 | -106635 | 1834159 16 SLV |
| 300 | 1.00 | -17501 | 1836715 3 SLV |
| 300 | 1.00 | -79860 | 1833752 16 SLV |
| 435 | 1.00 | 1122 | 1832967 1 SLV |
| 435 | 1.00 | -45779 | 1831198 16 SLV |
| 455 | 1.00 | 3892 | 1832997 1 SLV |
| 455 | 1.00 | -36755 | 1830638 16 SLV |
| 498 | 1.00 | 3892 | 1831323 1 SLV |
| 498 | 1.00 | -37111 | 1829507 16 SLV |
| 540 | 1.00 | 4618 | 1830117 1 SLV |
| 540 | 1.00 | 33110 | 1828146 1 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd comb |
|-------|-------|--------|--------|---------|---------|---------------|
| 0 | 108.4 | 0.0020 | 0.0022 | -35720 | -135309 | 302710 3 SLV |
| 0 | 108.4 | 0.0020 | 0.0022 | -117000 | -94158 | 302710 16 SLV |
| 68 | 108.4 | 0.0022 | 0.0022 | -39946 | -118328 | 340570 3 SLV |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | |
|-----|-------|--------|--------|---------|---------|--------|----|-----|
| 68 | 108.4 | 0.0022 | 0.0022 | -117820 | -82773 | 340570 | 16 | SLV |
| 135 | 108.4 | 0.0035 | 0.0022 | -36001 | -110641 | 536738 | 3 | SLU |
| 135 | 108.4 | 0.0035 | 0.0022 | -110281 | -76782 | 536738 | 16 | SLV |
| 165 | 108.4 | 0.0048 | 0.0022 | -35766 | -73008 | 732907 | 3 | SLU |
| 165 | 108.4 | 0.0048 | 0.0022 | -106635 | -51031 | 732907 | 16 | SLV |
| 300 | 108.4 | 0.0055 | 0.0022 | -17501 | -63809 | 830991 | 3 | SLU |
| 300 | 108.4 | 0.0055 | 0.0022 | -79860 | -48996 | 830991 | 16 | SLV |
| 435 | 108.4 | 0.0055 | 0.0022 | 1122 | -45070 | 830991 | 1 | SLU |
| 435 | 108.4 | 0.0055 | 0.0022 | -45779 | -36228 | 830991 | 16 | SLV |
| 455 | 108.4 | 0.0055 | 0.0022 | 3892 | -45219 | 830991 | 1 | SLU |
| 455 | 108.4 | 0.0055 | 0.0022 | -36755 | -33425 | 830991 | 16 | SLV |
| 498 | 108.4 | 0.0042 | 0.0022 | 3892 | -36850 | 634822 | 1 | SLU |
| 498 | 108.4 | 0.0042 | 0.0022 | -37111 | -27772 | 634822 | 16 | SLV |
| 540 | 108.4 | 0.0031 | 0.0022 | 4618 | -30823 | 475027 | 1 | SLU |
| 540 | 108.4 | 0.0031 | 0.0022 | 33110 | -20964 | 475027 | 1 | SLV |

Pannello P5

Parete fra le coordinate in pianta (0;18) (1385;18)
da quota -40 a quota 568
Valori in daN, cm
C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | | |
|---------|---|-----|-----|-----|-----|-----|------|---------|----|-----|-------|---------|---------|----------|
| 44 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 4.203 | 1 | SLU | -8688 | -242412 | -36513 | 1018758 |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | 40.312 | 9 | SLV | -576 | -15786 | -23230 | 636380 |
| 48 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 4.340 | 1 | SLU | -9577 | -250713 | -41569 | 1088197 |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | 30.139 | 1 | SLU | -643 | -19268 | -19387 | 580716 |
| 6009 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 213.184 | 10 | SLV | -683 | 10715 | -145618 | -2284229 |
| | v | 50 | 35 | 1.6 | 1.6 | 6.0 | 6.0 | 3.558 | 2 | SLU | 3374 | 1415 | 12003 | -5035 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|---|----|----------|----------|-------|---|--------|----------|----------|------|-----|-----|---|----|
| 44 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -24.1 | 1 | ra | -6.62E03 | -1.84E05 | 876.5 | 1 | ra | -6.62E03 | -1.84E05 | 0.00 | 7.0 | 0.0 | 1 | ra |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | -2.5 | 1 | ra | -7.82E02 | -1.50E04 | 73.9 | 1 | ra | -7.02E02 | -1.44E04 | 0.00 | 0.7 | 0.0 | 1 | ra |
| 48 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -24.6 | 1 | ra | -7.29E03 | -1.91E05 | 854.8 | 1 | ra | -7.29E03 | -1.91E05 | 0.00 | 7.1 | 0.0 | 1 | ra |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | -2.8 | 1 | ra | -4.95E02 | -1.46E04 | 116.8 | 1 | ra | -4.95E02 | -1.46E04 | 0.00 | 0.8 | 0.0 | 1 | ra |
| 6009 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -0.3 | 1 | ra | -9.53E02 | -3.19E02 | -3.8 | 1 | ra | -9.53E02 | -3.19E02 | 0.00 | 0.0 | 0.0 | 1 | ra |
| | v | 50 | 35 | 1.6 | 1.6 | 6.0 | 6.0 | -0.6 | 1 | ra | -8.24E02 | 9.71E02 | 770.6 | 1 | ra | 2.34E03 | 9.53E02 | 0.00 | 1.4 | 0.0 | 1 | ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|---|----|----------|----------|-------|---|--------|----------|----------|------|-----|-----|---|----|
| 44 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -22.7 | 1 | fr | -6.36E03 | -1.74E05 | 814.1 | 1 | fr | -6.36E03 | -1.74E05 | 0.00 | 6.6 | 0.0 | 1 | fr |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | -2.3 | 1 | fr | -7.53E02 | -1.41E04 | 68.0 | 1 | fr | -6.76E02 | -1.36E04 | 0.00 | 0.7 | 0.0 | 1 | fr |
| 48 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -23.3 | 1 | fr | -6.98E03 | -1.81E05 | 804.5 | 1 | fr | -6.98E03 | -1.81E05 | 0.00 | 6.8 | 0.0 | 1 | fr |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | -2.6 | 1 | fr | -4.90E02 | -1.37E04 | 105.1 | 1 | fr | -4.90E02 | -1.37E04 | 0.00 | 0.7 | 0.0 | 1 | fr |
| 6009 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -0.3 | 2 | fr | -8.47E02 | -4.02E02 | -3.3 | 2 | fr | -8.47E02 | -4.02E02 | 0.00 | 0.0 | 0.0 | 1 | fr |
| | v | 50 | 35 | 1.6 | 1.6 | 6.0 | 6.0 | -0.6 | 3 | fr | -7.77E02 | 1.25E03 | 759.1 | 2 | fr | 2.27E03 | 1.32E03 | 0.00 | 1.4 | 0.0 | 1 | fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|---|----|----------|----------|-------|---|--------|----------|----------|------|-----|-----|---|----|
| 44 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -22.2 | 1 | q. | -6.31E03 | -1.70E05 | 790.8 | 1 | q. | -6.31E03 | -1.70E05 | 0.00 | 6.4 | 0.0 | 1 | q. |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | -2.3 | 1 | q. | -6.74E02 | -1.34E04 | 65.1 | 1 | q. | -6.74E02 | -1.34E04 | 0.00 | 0.7 | 0.0 | 1 | q. |
| 48 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -22.9 | 1 | q. | -6.93E03 | -1.78E05 | 783.8 | 1 | q. | -6.93E03 | -1.78E05 | 0.00 | 6.6 | 0.0 | 1 | q. |
| | v | 70 | 35 | 2.4 | 2.4 | 6.0 | 6.0 | -2.5 | 1 | q. | -4.89E02 | -1.35E04 | 101.3 | 1 | q. | -4.89E02 | -1.35E04 | 0.00 | 0.7 | 0.0 | 1 | q. |
| 6009 | o | 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -0.2 | 1 | q. | -8.15E02 | -3.95E02 | -3.2 | 1 | q. | -8.15E02 | -3.95E02 | 0.00 | 0.0 | 0.0 | 1 | q. |
| | v | 50 | 35 | 1.6 | 1.6 | 6.0 | 6.0 | -0.5 | 1 | q. | -6.51E02 | 1.32E03 | 729.9 | 1 | q. | 2.18E03 | 1.30E03 | 0.00 | 1.4 | 0.0 | 1 | q. |

Trave da quota 465 a quota 568

Rapporto l/h 2.91<3

SLU

| Mx | My | N | Mxu | Myu | Nu | cs | comb |
|--------|-----|------|---------|------|-------|-------|------|
| -91201 | -25 | 2798 | -550055 | -152 | 16874 | 6.031 | 2 |

SLV

| Mx | My | N | Mxu | Myu | Nu | cs | comb |
|--------|-------|------|---------|-------|-------|-------|------|
| -92517 | -1728 | 3218 | -509268 | -9513 | 17715 | 5.505 | 4 |

Verifica a taglio

VEd 5118.03 comb 2 SLU

fctd*b*d = 46922

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 5118 < Vrd,S = 25641

Trave da quota 524 a quota 568

Rapporto l/h 3.64>=3

SLU

| Mx | My | N | Mxu | Myu | Nu | cs | comb |
|--------|-----|------|--------|------|------|-------|------|
| -18520 | -92 | 2018 | -63872 | -317 | 6958 | 3.449 | 2 |

SLV

| Mx | My | N | Mxu | Myu | Nu | cs | comb |
|--------|----|------|--------|-----|------|-------|------|
| -22871 | 79 | 1642 | -83608 | 290 | 6001 | 3.656 | 5 |

Verifica a taglio

VEd 3484.31 comb 1 SLV

Taglio ottenuto da gerarchia

M,plast,iniz.(+) = 302476

M,plast,iniz.(-) = 204332

M,plast,fin.(+) = 302476

M,plast,fin.(-) = 204332

l = 160

Gamma,Rd = 1.1

T,plast.(+) = GammaRd*(M,plast,iniz.(+) + M,plast,fin.(-))/ Luce = 3484

T,plast.(-) = GammaRd*(M,plast,iniz.(-) + M,plast,fin.(+))/ Luce = 3484

fctd*b*d = 20044

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 3484 < Vrd,S = 10953

Trave da quota 495 a quota 568

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Rapporto l/h 3.29>=3

| SLU | | | | | | | |
|--------|------|------|---------|-------|------|-------|------|
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| -75408 | -12 | 2285 | -228706 | -36 | 6931 | 3.033 | 2 |
| SLV | | | | | | | |
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| -45758 | -270 | 1807 | -198275 | -1172 | 7829 | 4.333 | 4 |

Verifica a taglio

VEd 6997.84 comb 1 SLV

Taglio ottenuto da gerarchia

M,plast,iniz.(+) = 786250

M,plast,iniz.(-) = 844965

M,plast,fin. (+) = 786250

M,plast,fin. (-) = 844965

l = 256

Gamma,Rd = 1.1

T,plast.(+) = GammaRd*(M,plast,iniz.(+)+ M,plast,fin.(-))/ Luce = 6998

T,plast.(-) = GammaRd*(M,plast,iniz.(-)+ M,plast,fin.(+))/ Luce = 6998

fctd*b*d = 33255

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 6998 < Vrd,S = 18172

Trave da quota 295 a quota 568

Rapporto l/h 0.59<3

| SLU | | | | | | | |
|--------|--------|-------|---------|---------|--------|--------|------|
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 132042 | 91065 | -2113 | 2750338 | 1896819 | -44014 | 20.829 | 2 |
| SLV | | | | | | | |
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 135860 | 115431 | -2402 | 2155341 | 1831257 | -38101 | 15.864 | 13 |

Verifica a taglio

VEd 9473.87 comb 2 SLU

fctd*b*d = 124365

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 9474 < Vrd,S = 67960

Trave da quota -40 a quota 150

Rapporto l/h 1.58<3

| SLU | | | | | | | |
|--------|------|-----|----------|--------|-------|--------|------|
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| -44293 | 1466 | 516 | -2263361 | 74887 | 26354 | 51.100 | 2 |
| SLV | | | | | | | |
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 113290 | 7400 | 393 | 3876782 | 253238 | 13462 | 34.220 | 8 |

Verifica a taglio

VEd 10700.47 comb 8 SLV

fctd*b*d = 86554

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 10700 < Vrd,S = 47298

Trave da quota -40 a quota 444

Rapporto l/h 0.33<3

| SLU | | | | | | | |
|--------|------|------|----------|--------|-------|--------|------|
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 271781 | 2992 | 1150 | 17495680 | 192599 | 74005 | 64.374 | 2 |
| SLV | | | | | | | |
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 295555 | 4871 | 1220 | 17675300 | 291281 | 72973 | 59.804 | 8 |

Verifica a taglio

VEd 13598.65 comb 12 SLV

fctd*b*d = 220486

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 13599 < Vrd,S = 120486

Trave da quota -40 a quota 395

Rapporto l/h 0.55<3

| SLU | | | | | | | |
|--------|------|------|----------|--------|--------|--------|------|
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 312592 | 3927 | -218 | 29832320 | 374800 | -20814 | 95.435 | 2 |
| SLV | | | | | | | |
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 463583 | -747 | 839 | 19175540 | -30907 | 34713 | 41.364 | 11 |

Verifica a taglio

VEd 9209.34 comb 13 SLV

fctd*b*d = 198164

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 9209 < Vrd,S = 108288

Trave da quota -40 a quota 215

Rapporto l/h 0.63<3

| SLU | | | | | | | |
|-------|------|------|---------|--------|-------|--------|------|
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 60629 | 2491 | 591 | 4112425 | 168946 | 40103 | 67.829 | 2 |
| SLV | | | | | | | |
| Mx | My | N | Mxu | Myu | Nu | cs | comb |
| 7846 | 6053 | 1040 | 406168 | 313339 | 53821 | 51.765 | 7 |

Verifica a taglio

VEd 9205.27 comb 11 SLV

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

fctd*b*d = 116165

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 20 Diametro 10 VEd = 9205 < Vrd,S = 63479

Verifica dei pannelli

Pannello : Pannello da Filo 1 a (50;18)

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | 17.5 |
| 0.0 | 50.0 |
| 35.0 | 50.0 |
| 35.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | 17.5 |
| 0.0 | 50.0 |
| 35.0 | 50.0 |
| 35.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | 17.5 |
| 0.0 | 50.0 |
| 35.0 | 50.0 |
| 35.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | 17.5 |
| 0.0 | 50.0 |
| 35.0 | 50.0 |
| 35.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 455

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 498

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Sezione a quota 540

Coordinate dei vertici

| X | Y |
|------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 50.0 | 17.5 |
| 50.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|------|-------|----|------|-------|----|------|------|----|------|------|----|---|---|---|
| 15.3 | -10.5 | 10 | 35.3 | -10.5 | 10 | 15.3 | 10.5 | 10 | 35.3 | 10.5 | 10 | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fed | fcfd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|----|------|-----|
| 188 | 14 | 99 | 95 | 572 | 50 | 3 | 198 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. | comb |
|-------|-------|--------|-------|--------|--------|----------|--------|
| 0 | 6758 | -28427 | -1512 | -1512 | -1512 | 50.5642 | 2 SLV |
| 0 | -159 | -37744 | -1330 | -1035 | -1330 | 26.8177 | 5 SLV |
| 68 | -547 | -28454 | -1655 | -1655 | -1655 | 62.8067 | 1 SLV |
| 68 | -2284 | -21348 | -995 | -1288 | -995 | 65.7425 | 16 SLV |
| 135 | 776 | -31141 | -1937 | -1937 | -1937 | 61.4118 | 1 SLV |
| 135 | -118 | -28839 | -621 | -1383 | -621 | 18.9900 | 12 SLV |
| 165 | 2732 | -8589 | -1302 | -1302 | -1302 | 197.1253 | 2 SLV |
| 165 | -1072 | -24815 | -933 | -1015 | -933 | 42.1958 | 13 SLV |
| 300 | 1966 | 3708 | -663 | -663 | -663 | 479.8438 | 2 SLV |
| 300 | 2454 | 31645 | -73 | -470 | -73 | 9.6955 | 8 SLV |
| 435 | -2049 | -5533 | -441 | -441 | -441 | 292.7765 | 2 SLV |
| 435 | -3989 | 3721 | 707 | -281 | -281 | 12.9395 | 8 SLV |
| 455 | 59 | -994 | -1144 | -1144 | -1144 | 240.8896 | 2 SLV |
| 455 | -1703 | 36168 | 1064 | -741 | -741 | 4.8173 | 8 SLV |
| 498 | 2242 | -33435 | -2842 | -2842 | -2842 | 60.1713 | 2 SLV |
| 498 | 3470 | -29868 | -2372 | -1802 | -2372 | 66.8201 | 13 SLV |
| 540 | 534 | -15553 | -1035 | -1035 | -1035 | 127.9348 | 2 SLV |
| 540 | -1051 | -11601 | -636 | -637 | -636 | 147.7100 | 12 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. | comb |
|-------|-------|-------------------|----------|--------|
| 0 | -1373 | -131693 | 95.9112 | 1 SLV |
| 68 | -1580 | -217294 | 137.5094 | 1 SLV |
| 135 | -2641 | -217294 | 82.2888 | 1 SLV |
| 165 | -1376 | -217294 | 157.9338 | 5 SLV |
| 300 | -893 | -217294 | 243.4337 | 9 SLV |
| 435 | -1271 | -131693 | 103.6502 | 9 SLV |
| 455 | -2528 | -131693 | 52.0836 | 9 SLV |
| 498 | -2372 | -131693 | 55.5182 | 13 SLV |
| 540 | -725 | -131693 | 181.6113 | 13 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrzd | comb |
|-------|---------|-------|-------|--------|
| 0 | 1.00 | -50 | 66144 | 3 SLV |
| 0 | 1.00 | -1381 | 66113 | 5 SLV |
| 68 | 1.00 | -127 | 66161 | 3 SLV |
| 68 | 1.00 | -1632 | 66136 | 5 SLV |
| 135 | 1.00 | 40 | 66234 | 1 SLV |
| 135 | 1.00 | -1611 | 66258 | 5 SLV |
| 165 | 1.00 | 1075 | 66107 | 2 SLV |
| 165 | 1.00 | 1612 | 65962 | 8 SLV |
| 300 | 1.00 | 626 | 65979 | 2 SLV |
| 300 | 1.00 | 1466 | 65861 | 8 SLV |
| 435 | 1.00 | 385 | 65935 | 2 SLV |
| 435 | 1.00 | 853 | 65847 | 8 SLV |
| 455 | 1.00 | 928 | 66076 | 2 SLV |
| 455 | 1.00 | 1601 | 65847 | 8 SLV |
| 498 | 1.00 | 1363 | 66415 | 2 SLV |
| 498 | 1.00 | 1775 | 66191 | 12 SLV |
| 540 | 1.00 | 514 | 66054 | 2 SLV |
| 540 | 1.00 | 336 | 65969 | 6 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-----|--------|--------|-------|-------|-------|--------|
| 0 | 3.1 | 0.0020 | 0.0018 | -50 | -1487 | 10928 | 3 SLV |
| 0 | 3.1 | 0.0020 | 0.0018 | -1381 | -1330 | 10928 | 5 SLV |
| 68 | 3.1 | 0.0022 | 0.0018 | -127 | -1569 | 12295 | 3 SLV |
| 68 | 3.1 | 0.0022 | 0.0018 | -1632 | -1447 | 12295 | 5 SLV |
| 135 | 3.1 | 0.0022 | 0.0018 | 40 | -1937 | 12295 | 1 SLV |
| 135 | 3.1 | 0.0022 | 0.0018 | -1611 | -2057 | 12295 | 5 SLV |
| 165 | 3.1 | 0.0022 | 0.0018 | 1075 | -1302 | 12295 | 2 SLV |
| 165 | 3.1 | 0.0022 | 0.0018 | 1612 | -577 | 12295 | 8 SLV |
| 300 | 3.1 | 0.0022 | 0.0018 | 626 | -663 | 12295 | 2 SLV |
| 300 | 3.1 | 0.0022 | 0.0018 | 1466 | -73 | 12295 | 8 SLV |
| 435 | 3.1 | 0.0022 | 0.0018 | 385 | -441 | 12295 | 2 SLV |
| 435 | 3.1 | 0.0022 | 0.0018 | 853 | 707 | 12295 | 8 SLV |
| 455 | 3.1 | 0.0022 | 0.0018 | 928 | -1144 | 12295 | 2 SLV |
| 455 | 3.1 | 0.0022 | 0.0018 | 1601 | 1064 | 12295 | 8 SLV |
| 498 | 3.1 | 0.0022 | 0.0018 | 1363 | -2842 | 12295 | 2 SLV |
| 498 | 3.1 | 0.0022 | 0.0018 | 1775 | -1720 | 12295 | 12 SLV |
| 540 | 3.1 | 0.0023 | 0.0018 | 514 | -1035 | 12610 | 2 SLV |
| 540 | 3.1 | 0.0023 | 0.0018 | 336 | -614 | 12610 | 6 SLV |

Pannello : Pannello da (210;18) a (245;18)

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Sezione a quota 0

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 68

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 135

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 165

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 300

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 435

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 455

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Sezione a quota 498

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|-------|-------|----|-------|------|----|---|---|---|---|---|---|---|---|---|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 235.3 | -10.5 | 10 | 235.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 540

Coordinate dei vertici

| | |
|-------|-------|
| X | Y |
| 210.0 | -17.5 |
| 210.0 | 17.5 |
| 245.0 | 17.5 |
| 245.0 | -17.5 |

Armature verticali

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|-------|-------|----|-------|-------|----|-------|------|----|-------|------|----|---|---|---|
| 215.3 | -10.5 | 10 | 235.3 | -10.5 | 10 | 215.3 | 10.5 | 10 | 235.3 | 10.5 | 10 | | | |

Verifica eseguita con comportamento non dissipativo
Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura
fcd fctd Hcr q.Hcr hw Lw n.p. hs
188 14 72 70 570 35 3 198

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|--------|--------|-------|--------|--------|----------------|
| 0 | 43460 | -37456 | -2769 | -2769 | -2769 | 11.1366 2 SLV |
| 0 | 36778 | -51239 | -2651 | -2008 | -2651 | 8.4854 9 SLV |
| 68 | 9592 | -12219 | -2714 | -2714 | -2714 | 55.0936 2 SLV |
| 68 | 13806 | -10361 | -1032 | -2001 | -1032 | 41.7165 8 SLV |
| 135 | -3086 | 17842 | -2643 | -2643 | -2643 | 53.9560 2 SLV |
| 135 | -888 | 29336 | -1298 | -1768 | -1298 | 15.0689 1 SLV |
| 165 | -4708 | 10836 | -2378 | -2378 | -2378 | 69.4268 2 SLV |
| 165 | 13310 | 10136 | 1098 | -1806 | 1098 | 5.7737 8 SLV |
| 300 | -8 | 23808 | -3471 | -3471 | -3471 | 41.7838 2 SLV |
| 300 | -3324 | 22743 | -1984 | -2290 | -1984 | 43.8571 4 SLV |
| 435 | -480 | -12298 | -6261 | -6261 | -6261 | 31.4116 2 SLV |
| 435 | 29558 | -11778 | -3680 | -4093 | -3680 | 31.3583 9 SLV |
| 455 | -980 | -5091 | -9756 | -9756 | -9756 | 20.1582 2 SLV |
| 455 | -47062 | -15134 | -8487 | -6280 | -8487 | 18.0315 8 SLV |
| 498 | -64 | -15879 | -5474 | -5474 | -5474 | 34.8054 2 SLV |
| 498 | -12415 | -36771 | -3300 | -3522 | -3300 | 20.7365 12 SLV |
| 540 | 113 | -16493 | -1997 | -1997 | -1997 | 63.4206 2 SLV |
| 540 | -391 | -14753 | -1214 | -1259 | -1214 | 69.6468 12 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|-------|-------------------|---------------|
| 0 | -2658 | -92185 | 34.6763 5 SLV |
| 68 | -2959 | -92185 | 31.1530 5 SLV |
| 135 | -3654 | -92185 | 25.2280 9 SLV |
| 165 | -4572 | -92185 | 20.1633 9 SLV |
| 300 | -3077 | -92185 | 29.9569 9 SLV |
| 435 | -4891 | -92185 | 18.8486 4 SLV |
| 455 | -8487 | -92185 | 10.8616 8 SLV |
| 498 | -4224 | -92185 | 21.8243 2 SLV |
| 540 | -1409 | -92185 | 65.4262 2 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrcd | comb |
|-------|---------|-------|-------|--------|
| 0 | 1.00 | -535 | 46644 | 1 SLV |
| 0 | 1.00 | -2219 | 46623 | 9 SLV |
| 68 | 1.00 | -780 | 46635 | 2 SLV |
| 68 | 1.00 | -2798 | 46675 | 9 SLV |
| 135 | 1.00 | -926 | 46621 | 2 SLV |
| 135 | 1.00 | -2855 | 46823 | 9 SLV |
| 165 | 1.00 | 97 | 46568 | 2 SLV |
| 165 | 1.00 | 823 | 46093 | 8 SLV |
| 300 | 1.00 | 461 | 46787 | 2 SLV |
| 300 | 1.00 | 511 | 46489 | 4 SLV |
| 435 | 1.00 | 1269 | 47345 | 2 SLV |
| 435 | 1.00 | 1781 | 47071 | 4 SLV |
| 455 | 1.00 | 3833 | 48044 | 2 SLV |
| 455 | 1.00 | 6849 | 47790 | 8 SLV |
| 498 | 1.00 | 859 | 47187 | 2 SLV |
| 498 | 1.00 | 1011 | 46753 | 12 SLV |
| 540 | 1.00 | 514 | 46492 | 2 SLV |
| 540 | 1.00 | 725 | 46352 | 5 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-----|--------|--------|-------|-------|------|--------|
| 0 | 3.1 | 0.0020 | 0.0026 | -535 | -2755 | 7650 | 1 SLV |
| 0 | 3.1 | 0.0020 | 0.0026 | -2219 | -2651 | 7650 | 9 SLV |
| 68 | 3.1 | 0.0022 | 0.0026 | -780 | -2714 | 8606 | 2 SLV |
| 68 | 3.1 | 0.0022 | 0.0026 | -2798 | -2913 | 8606 | 9 SLV |
| 135 | 3.1 | 0.0022 | 0.0026 | -926 | -2643 | 8606 | 2 SLV |
| 135 | 3.1 | 0.0022 | 0.0026 | -2855 | -3654 | 8606 | 9 SLV |
| 165 | 3.1 | 0.0022 | 0.0026 | 97 | -2378 | 8606 | 2 SLV |
| 165 | 3.1 | 0.0022 | 0.0026 | 823 | 1098 | 8606 | 8 SLV |
| 300 | 3.1 | 0.0022 | 0.0026 | 461 | -3471 | 8606 | 2 SLV |
| 300 | 3.1 | 0.0022 | 0.0026 | 511 | -1984 | 8606 | 4 SLV |
| 435 | 3.1 | 0.0022 | 0.0026 | 1269 | -6261 | 8606 | 2 SLV |
| 435 | 3.1 | 0.0022 | 0.0026 | 1781 | -4891 | 8606 | 4 SLV |
| 455 | 3.1 | 0.0022 | 0.0026 | 3833 | -9756 | 8606 | 2 SLV |
| 455 | 3.1 | 0.0022 | 0.0026 | 6849 | -8487 | 8606 | 8 SLV |
| 498 | 1.6 | 0.0022 | 0.0013 | 859 | -5474 | 8606 | 2 SLV |
| 498 | 1.6 | 0.0022 | 0.0013 | 1011 | -3300 | 8606 | 12 SLV |
| 540 | 3.1 | 0.0023 | 0.0026 | 514 | -1997 | 8827 | 2 SLV |
| 540 | 3.1 | 0.0023 | 0.0026 | 725 | -1295 | 8827 | 5 SLV |

Pannello : Pannello da (545;18) a (780;18)

Sezione a quota 1

Coordinate dei vertici

| X | Y |
|-------|-------|
| 545.0 | -17.5 |
| 545.0 | 17.5 |
| 780.0 | 17.5 |
| 780.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|-------|-------|
| 545.0 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Sezione a quota 135

Coordinate dei vertici

X Y
545.0 -17.5
545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Sezione a quota 165

Coordinate dei vertici

X Y
545.0 -17.5
545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Sezione a quota 300

Coordinate dei vertici

X Y
545.0 -17.5
545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Sezione a quota 435

Coordinate dei vertici

X Y
545.0 -17.5
545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 455

Coordinate dei vertici

X Y
545.0 -17.5
545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 | 615.3 | 10.5 | 10 |
| 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 | 715.3 | 10.5 | 10 |
| 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 498

Coordinate dei vertici

X Y
545.0 -17.5
545.0 17.5
780.0 17.5
780.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |

**Ampliamento e potenziamento dell' Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|-------|------|----|-------|------|----|-------|------|----|-------|------|----|-------|------|----|
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Sezione a quota 540

Coordinate dei vertici

| X | Y |
|-------|-------|
| 545.0 | -17.5 |
| 545.0 | 17.5 |
| 780.0 | 17.5 |
| 780.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 555.3 | -10.5 | 10 | 575.3 | -10.5 | 10 | 595.3 | -10.5 | 10 | 615.3 | -10.5 | 10 | 635.3 | -10.5 | 10 |
| 655.3 | -10.5 | 10 | 675.3 | -10.5 | 10 | 695.3 | -10.5 | 10 | 715.3 | -10.5 | 10 | 735.3 | -10.5 | 10 |
| 755.3 | -10.5 | 10 | 775.3 | -10.5 | 10 | 555.3 | 10.5 | 10 | 575.3 | 10.5 | 10 | 595.3 | 10.5 | 10 |
| 615.3 | 10.5 | 10 | 635.3 | 10.5 | 10 | 655.3 | 10.5 | 10 | 675.3 | 10.5 | 10 | 695.3 | 10.5 | 10 |
| 715.3 | 10.5 | 10 | 735.3 | 10.5 | 10 | 755.3 | 10.5 | 10 | 775.3 | 10.5 | 10 | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fcd | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|-----|------|-----|
| 188 | 14 | 198 | 198 | 568 | 235 | 3 | 198 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. | comb |
|-------|---------|---------|--------|--------|--------|----------|-------|
| 1 | 380227 | 1632 | -20348 | -20348 | -20348 | 10.7693 | 2 SLU |
| 1 | 324336 | 35492 | -16253 | -14899 | -16253 | 11.2710 | 2 SLV |
| 68 | 106631 | 152933 | -20262 | -20262 | -20262 | 50.9618 | 2 SLU |
| 68 | 138184 | 148475 | -11740 | -14379 | -11740 | 42.7482 | 7 SLV |
| 135 | -18474 | 64702 | -24793 | -24793 | -24793 | 52.9046 | 2 SLU |
| 135 | -165306 | -37949 | -19903 | -17402 | -19903 | 41.6691 | 5 SLV |
| 165 | -37585 | 417174 | -21409 | -21409 | -21409 | 58.4661 | 2 SLU |
| 165 | -206857 | 159886 | -16413 | -14860 | -16413 | 28.3982 | 6 SLV |
| 300 | -20315 | 353920 | -18034 | -18034 | -18034 | 70.9742 | 2 SLU |
| 300 | -112218 | 298195 | -11738 | -12239 | -11738 | 48.0654 | 8 SLV |
| 435 | -9049 | -22071 | -18238 | -18238 | -18238 | 71.5823 | 2 SLU |
| 435 | -221710 | -158225 | -9912 | -12026 | -9912 | 12.2842 | 8 SLV |
| 455 | -6181 | -35113 | -17638 | -17638 | -17638 | 74.0175 | 2 SLU |
| 455 | -205350 | -277726 | -9327 | -11564 | -9327 | 12.4803 | 8 SLV |
| 498 | -1822 | 71100 | -10789 | -10789 | -10789 | 121.5790 | 2 SLU |
| 498 | -116529 | -74110 | -6575 | -6953 | -6575 | 33.9168 | 8 SLV |
| 540 | -441 | -65404 | -7629 | -7629 | -7629 | 171.9260 | 2 SLU |
| 540 | -27717 | -58822 | -4636 | -4740 | -4636 | 199.9298 | 8 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. | comb |
|-------|--------|-------------------|----------|--------|
| 1 | -18860 | -618959 | 32.8179 | 10 SLV |
| 68 | -17657 | -618959 | 35.0545 | 6 SLV |
| 135 | -22069 | -618959 | 28.0470 | 2 SLV |
| 165 | -19553 | -618959 | 31.6556 | 4 SLV |
| 300 | -14637 | -618959 | 42.2887 | 2 SLV |
| 435 | -14042 | -618959 | 44.0780 | 9 SLV |
| 455 | -13704 | -618959 | 45.1647 | 9 SLV |
| 498 | -7292 | -618959 | 84.8817 | 9 SLV |
| 540 | -4877 | -618959 | 126.9181 | 6 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrcd | comb |
|-------|---------|-------|--------|-------|
| 1 | 1.00 | 2213 | 313549 | 2 SLU |
| 1 | 1.00 | 5770 | 312249 | 4 SLV |
| 68 | 1.00 | 2264 | 313532 | 2 SLU |
| 68 | 1.00 | 5206 | 312516 | 4 SLV |
| 135 | 1.00 | 1862 | 314438 | 2 SLU |
| 135 | 1.00 | 4825 | 313647 | 4 SLV |
| 165 | 1.00 | 776 | 313575 | 3 SLU |
| 165 | 1.00 | 4961 | 313390 | 4 SLV |
| 300 | 1.00 | 189 | 312880 | 3 SLU |
| 300 | 1.00 | 3477 | 312257 | 4 SLV |
| 435 | 1.00 | -1129 | 313127 | 2 SLU |
| 435 | 1.00 | -5636 | 312288 | 9 SLV |
| 455 | 1.00 | -1129 | 313007 | 2 SLU |
| 455 | 1.00 | -5305 | 312220 | 9 SLV |
| 498 | 1.00 | -1925 | 311637 | 2 SLU |
| 498 | 1.00 | -2436 | 310938 | 9 SLV |
| 540 | 1.00 | -1435 | 311005 | 2 SLU |
| 540 | 1.00 | -2276 | 310430 | 4 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|------|--------|--------|-------|--------|-------|-------|
| 1 | 18.8 | 0.0020 | 0.0023 | 2213 | -20348 | 50798 | 2 SLU |
| 1 | 18.8 | 0.0020 | 0.0023 | 5770 | -13848 | 50798 | 4 SLV |
| 68 | 18.8 | 0.0022 | 0.0023 | 2264 | -20262 | 57786 | 2 SLU |
| 68 | 18.8 | 0.0022 | 0.0023 | 5206 | -15182 | 57786 | 4 SLV |
| 135 | 18.8 | 0.0022 | 0.0023 | 1862 | -24793 | 57786 | 2 SLU |
| 135 | 18.8 | 0.0022 | 0.0023 | 4825 | -20838 | 57786 | 4 SLV |
| 165 | 18.8 | 0.0022 | 0.0023 | 776 | -20481 | 57786 | 3 SLU |
| 165 | 18.8 | 0.0022 | 0.0023 | 4961 | -19553 | 57786 | 4 SLV |
| 300 | 18.8 | 0.0022 | 0.0023 | 189 | -17005 | 57786 | 3 SLU |
| 300 | 18.8 | 0.0022 | 0.0023 | 3477 | -13886 | 57786 | 4 SLV |
| 435 | 17.3 | 0.0022 | 0.0021 | -1129 | -18238 | 57786 | 2 SLU |
| 435 | 17.3 | 0.0022 | 0.0021 | -5636 | -14042 | 57786 | 9 SLV |
| 455 | 17.3 | 0.0022 | 0.0021 | -1129 | -17638 | 57786 | 2 SLU |
| 455 | 17.3 | 0.0022 | 0.0021 | -5305 | -13704 | 57786 | 9 SLV |
| 498 | 18.8 | 0.0022 | 0.0023 | -1925 | -10789 | 57786 | 2 SLU |
| 498 | 18.8 | 0.0022 | 0.0023 | -2436 | -7292 | 57786 | 9 SLV |
| 540 | 18.8 | 0.0023 | 0.0023 | -1435 | -7629 | 59265 | 2 SLU |
| 540 | 18.8 | 0.0023 | 0.0023 | -2276 | -4751 | 59265 | 4 SLV |

Pannello : Pannello da (1020;18) a (1150;18)

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

1020.0 17.5
1149.7 17.5
1149.7 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 455

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 498

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1035.3 | -10.5 | 10 | 1055.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|------|----|--------|------|----|--------|------|----|--------|------|----|
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 540

Coordinate dei vertici

| | |
|--------|-------|
| X | Y |
| 1020.0 | -17.5 |
| 1020.0 | 17.5 |
| 1149.7 | 17.5 |
| 1149.7 | -17.5 |

Armature verticali

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
| 1035.3 | -10.5 | 10 | 1035.3 | -10.5 | 10 | 1075.3 | -10.5 | 10 | 1095.3 | -10.5 | 10 | 1115.3 | -10.5 | 10 |
| 1135.3 | -10.5 | 10 | 1035.3 | 10.5 | 10 | 1055.3 | 10.5 | 10 | 1075.3 | 10.5 | 10 | 1095.3 | 10.5 | 10 |
| 1115.3 | 10.5 | 10 | 1135.3 | 10.5 | 10 | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| | | | | | | | |
|-----|------|-----|-------|-----|-----|------|-----|
| fcd | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
| 188 | 14 | 132 | 130 | 570 | 130 | 3 | 198 |

Verifica a pressoflessione

| | | | | | | |
|-------|--------|--------|--------|--------|--------|-----------------|
| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
| 0 | 211179 | -32634 | -12300 | -12300 | -12300 | 11.1372 2 SLV |
| 0 | 182228 | -58970 | -10377 | -9092 | -10377 | 12.1330 13 SLV |
| 68 | 40421 | 13937 | -11189 | -11189 | -11189 | 60.4667 2 SLV |
| 68 | 64415 | 40710 | -5879 | -8022 | -5879 | 53.6039 7 SLV |
| 135 | -22084 | 44867 | -11072 | -11072 | -11072 | 65.0513 2 SLV |
| 135 | -83786 | -12617 | -9605 | -7848 | -9605 | 45.6646 10 SLV |
| 165 | -24605 | -7146 | -7694 | -7694 | -7694 | 91.0797 2 SLV |
| 165 | -86097 | -7723 | -7026 | -5414 | -7026 | 42.1969 9 SLV |
| 300 | 6369 | -1405 | -7107 | -7107 | -7107 | 101.3517 2 SLV |
| 300 | -49502 | 5999 | -3198 | -4899 | -3198 | 55.1994 7 SLV |
| 435 | 8895 | 147755 | -7290 | -7290 | -7290 | 79.0157 2 SLV |
| 435 | -88735 | 95979 | -3596 | -4728 | -3596 | 13.6373 7 SLV |
| 455 | 8080 | 124008 | -8149 | -8149 | -8149 | 79.3225 2 SLV |
| 455 | -82408 | 58629 | -4445 | -5302 | -4445 | 22.5453 7 SLV |
| 498 | 3930 | 60073 | -4751 | -4751 | -4751 | 144.2064 2 SLV |
| 498 | -55071 | 55817 | -2183 | -3018 | -2183 | 21.7151 7 SLV |
| 540 | 1023 | 76255 | -4401 | -4401 | -4401 | 143.4304 2 SLV |
| 540 | -11984 | 71060 | -2395 | -2713 | -2395 | 149.5824 11 SLV |

Controllo dello sforzo normale massimo

| | | | |
|-------|--------|-------------------|----------------|
| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
| 0 | -11435 | -341693 | 29.8810 10 SLV |
| 68 | -10411 | -341693 | 32.8194 14 SLV |
| 135 | -9803 | -341693 | 34.8550 13 SLV |
| 165 | -7134 | -341693 | 47.8980 6 SLV |
| 300 | -7003 | -341693 | 48.7954 6 SLV |
| 435 | -6747 | -341693 | 50.6427 2 SLV |
| 455 | -6473 | -341693 | 52.7838 6 SLV |
| 498 | -4340 | -341693 | 78.7223 6 SLV |
| 540 | -3028 | -341693 | 112.8295 6 SLV |

Verifica compressione del diagonale

| | | | |
|-------|---------|-------|---------------|
| quota | epsilon | VEd | Vrcd comb |
| 0 | 1.00 | -3662 | 173307 2 SLV |
| 0 | 1.00 | -6307 | 172224 11 SLV |
| 68 | 1.00 | -3474 | 173084 2 SLV |
| 68 | 1.00 | -5896 | 172251 11 SLV |
| 135 | 1.00 | -3257 | 173061 2 SLV |
| 135 | 1.00 | -5549 | 172261 11 SLV |
| 165 | 1.00 | -815 | 172385 2 SLV |
| 165 | 1.00 | -2095 | 171822 15 SLV |
| 300 | 1.00 | -498 | 172168 1 SLV |
| 300 | 1.00 | -1792 | 171542 15 SLV |
| 435 | 1.00 | -1516 | 172305 2 SLV |
| 435 | 1.00 | -3456 | 171432 15 SLV |
| 455 | 1.00 | -2577 | 172476 2 SLV |
| 455 | 1.00 | -3871 | 171728 15 SLV |
| 498 | 1.00 | -923 | 171699 1 SLV |
| 498 | 1.00 | -1808 | 171192 11 SLV |
| 540 | 1.00 | -1664 | 171727 2 SLV |
| 540 | 1.00 | -2335 | 171326 11 SLV |

Verifica trazione del diagonale

| | | | | | | |
|-------|-----|--------|--------|-------|--------|--------------|
| quota | At | roh | rov | VEd | NEd | VRsd comb |
| 0 | 9.4 | 0.0020 | 0.0021 | -3662 | -12300 | 28354 2 SLV |
| 0 | 9.4 | 0.0020 | 0.0021 | -6307 | -6889 | 28354 11 SLV |
| 68 | 9.4 | 0.0022 | 0.0021 | -3474 | -11189 | 31901 2 SLV |
| 68 | 9.4 | 0.0022 | 0.0021 | -5896 | -7022 | 31901 11 SLV |
| 135 | 9.4 | 0.0022 | 0.0021 | -3257 | -11072 | 31901 2 SLV |
| 135 | 9.4 | 0.0022 | 0.0021 | -5549 | -7074 | 31901 11 SLV |
| 165 | 9.4 | 0.0022 | 0.0021 | -815 | -7694 | 31901 2 SLV |
| 165 | 9.4 | 0.0022 | 0.0021 | -2095 | -4879 | 31901 15 SLV |
| 300 | 9.4 | 0.0022 | 0.0021 | -498 | -6607 | 31901 1 SLV |
| 300 | 9.4 | 0.0022 | 0.0021 | -1792 | -3477 | 31901 15 SLV |
| 435 | 9.4 | 0.0022 | 0.0021 | -1516 | -7290 | 31901 2 SLV |
| 435 | 9.4 | 0.0022 | 0.0021 | -3456 | -2926 | 31901 15 SLV |
| 455 | 9.4 | 0.0022 | 0.0021 | -2577 | -8149 | 31901 2 SLV |
| 455 | 9.4 | 0.0022 | 0.0021 | -3871 | -4407 | 31901 15 SLV |
| 498 | 9.4 | 0.0022 | 0.0021 | -923 | -4261 | 31901 1 SLV |
| 498 | 9.4 | 0.0022 | 0.0021 | -1808 | -1726 | 31901 11 SLV |
| 540 | 9.4 | 0.0023 | 0.0021 | -1664 | -4401 | 32717 2 SLV |
| 540 | 9.4 | 0.0023 | 0.0021 | -2335 | -2395 | 32717 11 SLV |

Pannello : Pannello da (1310;18) a Filo 10

Sezione a quota 0

Coordinate dei vertici

| | |
|--------|-------|
| X | Y |
| 1309.7 | -17.5 |
| 1309.7 | 17.5 |
| 1385.0 | 17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

1385.0 -17.5

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 69.7 |
| 1385.0 | 69.7 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1309.7 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 75.3 |
| 1385.0 | 75.3 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1309.7 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 75.3 |
| 1385.0 | 75.3 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1309.7 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | 17.5 |
| 1350.0 | 17.5 |
| 1350.0 | 67.0 |
| 1385.0 | 67.0 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |
| 1309.7 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | -17.5 |
| 1309.7 | 17.5 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 455

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | -17.5 |
| 1309.7 | 17.5 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 498

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | -17.5 |
| 1309.7 | 17.5 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 540

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1309.7 | -17.5 |
| 1309.7 | 17.5 |
| 1385.0 | 17.5 |
| 1385.0 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|------|----|--------|------|----|
| 1335.3 | -10.5 | 10 | 1355.3 | -10.5 | 10 | 1375.3 | -10.5 | 10 | 1335.3 | 10.5 | 10 | 1355.3 | 10.5 | 10 |
| 1375.3 | 10.5 | 10 | | | | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fd | fdcd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|----|------|-----|
| 188 | 14 | 97 | 95 | 570 | 75 | 3 | 198 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|--------|--------|-------|--------|--------|----------------|
| 0 | 16842 | 4464 | -2236 | -2236 | -2236 | 123.1496 1 SLV |
| 0 | 20150 | -18379 | -763 | -1726 | -763 | 27.8698 3 SLV |
| 68 | -3134 | 19791 | -2176 | -2176 | -2176 | 162.3967 1 SLV |
| 68 | -7420 | 3946 | -308 | -1580 | -308 | 92.5613 4 SLV |
| 135 | -8386 | 35114 | -2358 | -2358 | -2358 | 103.6213 1 SLV |
| 135 | -4246 | 54086 | -996 | -1687 | -996 | 35.0467 7 SLV |
| 165 | -447 | 1430 | -1058 | -1058 | -1058 | 446.8258 2 SLV |
| 165 | 7960 | -15909 | 909 | -761 | 909 | 10.5129 11 SLV |
| 300 | -674 | -1657 | -3484 | -3484 | -3484 | 140.8545 2 SLV |
| 300 | -13150 | -20698 | -2669 | -2625 | -2669 | 110.6230 7 SLV |
| 435 | 4505 | 26251 | -1056 | -1056 | -1056 | 144.4333 2 SLV |
| 435 | 5320 | 28466 | -561 | -464 | -561 | 64.3463 15 SLV |
| 455 | 10491 | -34665 | -1000 | -1000 | -1000 | 52.0850 3 SLV |
| 455 | 13317 | -46831 | -632 | -599 | -632 | 17.9528 15 SLV |
| 498 | 470 | 45554 | -698 | -698 | -698 | 34.9359 3 SLV |
| 498 | 397 | 53699 | -395 | -367 | -395 | 19.7060 15 SLV |
| 540 | -2355 | 31093 | -723 | -723 | -723 | 80.0270 1 SLV |
| 540 | -3245 | 33244 | -433 | -431 | -433 | 41.3984 15 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|-------|-------------------|-----------------|
| 0 | -2693 | -198250 | 73.6198 13 SLV |
| 68 | -2852 | -335848 | 117.7690 13 SLV |
| 135 | -2348 | -350407 | 149.2667 6 SLV |
| 165 | -2570 | -350407 | 136.3597 6 SLV |
| 300 | -2823 | -328626 | 116.4061 15 SLV |
| 435 | -833 | -198250 | 237.9170 5 SLV |
| 455 | -778 | -198250 | 254.8858 5 SLV |
| 498 | -549 | -198250 | 360.8866 5 SLV |
| 540 | -512 | -198250 | 387.1115 7 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrzd comb |
|-------|---------|-------|--------------|
| 0 | 1.00 | -1419 | 99561 2 SLV |
| 0 | 1.00 | -2644 | 99417 11 SLV |
| 68 | 1.00 | -1409 | 99560 1 SLV |
| 68 | 1.00 | -2629 | 99248 7 SLV |
| 135 | 1.00 | -1297 | 99596 1 SLV |
| 135 | 1.00 | -2712 | 99324 7 SLV |
| 165 | 1.00 | -649 | 99326 1 SLV |
| 165 | 1.00 | -1000 | 99125 11 SLV |
| 300 | 1.00 | -1437 | 99822 2 SLV |
| 300 | 1.00 | -1754 | 99686 11 SLV |
| 435 | 1.00 | -1810 | 99336 2 SLV |
| 435 | 1.00 | -2147 | 99254 11 SLV |
| 455 | 1.00 | -2019 | 99342 2 SLV |
| 455 | 1.00 | -2396 | 99251 15 SLV |
| 498 | 1.00 | -2019 | 99282 2 SLV |
| 498 | 1.00 | -2387 | 99204 15 SLV |
| 540 | 1.00 | -2140 | 99288 2 SLV |
| 540 | 1.00 | -2442 | 99221 11 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd comb |
|-------|-----|--------|--------|-------|-------|--------------|
| 0 | 4.7 | 0.0020 | 0.0018 | -1419 | -2180 | 16451 2 SLV |
| 0 | 4.7 | 0.0020 | 0.0018 | -2644 | -1462 | 16451 11 SLV |
| 68 | 4.7 | 0.0022 | 0.0018 | -1409 | -2176 | 18509 1 SLV |
| 68 | 4.7 | 0.0022 | 0.0018 | -2629 | -615 | 18509 7 SLV |
| 135 | 4.7 | 0.0022 | 0.0018 | -1297 | -2358 | 18509 1 SLV |
| 135 | 4.7 | 0.0022 | 0.0018 | -2712 | -996 | 18509 7 SLV |
| 165 | 4.7 | 0.0022 | 0.0018 | -649 | -1007 | 18509 1 SLV |
| 165 | 4.7 | 0.0022 | 0.0018 | -1000 | 909 | 18509 11 SLV |
| 300 | 4.7 | 0.0022 | 0.0018 | -1437 | -3484 | 18509 2 SLV |
| 300 | 4.7 | 0.0022 | 0.0018 | -1754 | -2807 | 18509 11 SLV |
| 435 | 4.7 | 0.0022 | 0.0018 | -1810 | -1056 | 18509 2 SLV |
| 435 | 4.7 | 0.0022 | 0.0018 | -2147 | -646 | 18509 11 SLV |
| 455 | 4.7 | 0.0022 | 0.0018 | -2019 | -1088 | 18509 2 SLV |
| 455 | 4.7 | 0.0022 | 0.0018 | -2396 | -632 | 18509 15 SLV |
| 498 | 4.7 | 0.0022 | 0.0018 | -2019 | -785 | 18509 2 SLV |
| 498 | 4.7 | 0.0022 | 0.0018 | -2387 | -395 | 18509 15 SLV |
| 540 | 4.7 | 0.0023 | 0.0018 | -2140 | -815 | 18982 2 SLV |
| 540 | 4.7 | 0.0023 | 0.0018 | -2442 | -479 | 18982 11 SLV |

Pannello P6

Parete fra le coordinate in pianta (1368;0) (1368;1398)

da quota -40 a quota 568

Valori in daN, cm

C32/40: rck 400

fyk 4500

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|---------|----------|------|------|-----|-----|--------|--------|-------|---------|--------|----------|----|
| 1493 | o 100 35 | 9.6 | 9.6 | 7.1 | 7.1 | 1.328 | 14 SLV | -9126 | 942947 | -12119 | -1252202 | |
| | v 70 35 | 4.3 | 4.3 | 6.6 | 6.6 | 11.699 | 15 SLV | 686 | 33386 | 8023 | -390567 | |
| 3150 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | 1.047 | 1 SLV | -676 | 478393 | -708 | -500876 | |
| | v 100 35 | 9.6 | 9.6 | 7.2 | 7.2 | 2.330 | 13 SLV | 2110 | -442044 | 4917 | 1029921 | |
| 5027 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | 3.387 | 2 SLV | 6372 | 45714 | 21585 | -154855 | |
| | v 100 35 | 19.8 | 19.8 | 7.7 | 7.7 | 1.245 | 14 SLV | 33230 | 1233111 | 41379 | -1535494 | |
| 5377 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | 18.193 | 16 SLV | -147 | -29144 | -2668 | 530227 | |
| | v 50 35 | 6.1 | 6.1 | 7.6 | 7.6 | 1.107 | 16 SLV | 20195 | -347756 | 22346 | 384804 | |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|----------|------|------|-----|-----|-------|------|----------|----------|--------|------|----------|----------|------|---------|------|---------|---|
| 1493 | o 100 35 | 9.6 | 9.6 | 7.1 | 7.1 | -57.8 | 1 ra | -9.40E03 | 5.77E05 | 1873.1 | 1 ra | -9.40E03 | 5.77E05 | 0.00 | 24.7 | 0.0 | 1 ra | |
| | v 70 35 | 4.3 | 4.3 | 6.6 | 6.6 | -3.6 | 1 ra | 6.09E01 | 2.12E04 | 253.1 | 1 ra | 4.73E02 | 2.12E04 | 0.00 | 1.6 | 0.0 | 1 ra | |
| 3150 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -28.9 | 1 ra | -2.97E03 | 2.00E05 | 1502.3 | 1 ra | -2.97E03 | 2.00E05 | 0.00 | 8.8 | 0.0 | 1 ra | |
| | v 100 35 | 9.6 | 9.6 | 7.2 | 7.2 | -21.8 | 1 ra | 1.47E03 | -2.11E05 | 1011.7 | 1 ra | 1.47E03 | -2.11E05 | 0.00 | 10.4 | 0.0 | 1 ra | |
| 5027 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -4.3 | 1 ra | 1.75E03 | 2.89E04 | 662.7 | 1 ra | 2.98E03 | 2.44E04 | 0.00 | 2.0 | 0.0 | 1 ra | |
| | v 100 35 | 19.8 | 19.8 | 7.7 | 7.7 | -46.1 | 1 ra | 2.79E04 | 6.30E05 | 2275.9 | 1 ra | 2.79E04 | 6.30E05 | 0.05 | 0.0 | 58.7 | 1 ra | |
| 5377 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -1.6 | 1 ra | -1.49E02 | -1.13E04 | 87.5 | 1 ra | -1.49E02 | -1.13E04 | 0.00 | 0.5 | 0.0 | 1 ra | |
| | v 50 35 | 6.1 | 6.1 | 7.6 | 7.6 | -27.3 | 1 ra | 1.51E04 | -1.72E05 | 2683.5 | 1 ra | 1.52E04 | -1.71E05 | 0.00 | 24.5 | 0.0 | 1 ra | |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|----------|------|------|-----|-----|-------|------|----------|----------|--------|------|----------|----------|------|---------|------|---------|---|
| 1493 | o 100 35 | 9.6 | 9.6 | 7.1 | 7.1 | -52.2 | 3 fr | -9.03E03 | 5.22E05 | 1665.7 | 3 fr | -9.03E03 | 5.22E05 | 0.00 | 22.2 | 0.0 | 1 fr | |
| | v 70 35 | 4.3 | 4.3 | 6.6 | 6.6 | -3.3 | 3 fr | 4.25E02 | 1.93E04 | 230.4 | 3 fr | 4.25E02 | 1.93E04 | 0.00 | 1.5 | 0.0 | 1 fr | |
| 3150 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -28.5 | 3 fr | -2.98E03 | 1.97E05 | 1478.4 | 3 fr | -2.98E03 | 1.97E05 | 0.00 | 8.7 | 0.0 | 1 fr | |
| | v 100 35 | 9.6 | 9.6 | 7.2 | 7.2 | -20.9 | 3 fr | 1.37E03 | -2.02E05 | 967.5 | 3 fr | 1.37E03 | -2.02E05 | 0.00 | 10.0 | 0.0 | 1 fr | |
| 5027 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -3.8 | 3 fr | 1.54E03 | 2.56E04 | 592.0 | 3 fr | 2.65E03 | 2.21E04 | 0.00 | 1.8 | 0.0 | 1 fr | |
| | v 100 35 | 19.8 | 19.8 | 7.7 | 7.7 | -41.5 | 3 fr | 2.57E04 | 5.69E05 | 2069.9 | 3 fr | 2.57E04 | 5.69E05 | 0.05 | 0.0 | 58.8 | 3 fr | |
| 5377 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -1.5 | 3 fr | -1.51E02 | -1.00E04 | 75.2 | 3 fr | -1.51E02 | -1.00E04 | 0.00 | 0.4 | 0.0 | 1 fr | |
| | v 50 35 | 6.1 | 6.1 | 7.6 | 7.6 | -24.2 | 3 fr | 1.40E04 | -1.55E05 | 2449.1 | 3 fr | 1.40E04 | -1.54E05 | 0.00 | 22.2 | 0.0 | 1 fr | |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c |
|---------|----------|------|------|-----|-----|-------|------|----------|----------|--------|------|----------|----------|------|---------|-----|---------|---|
| 1493 | o 100 35 | 9.6 | 9.6 | 7.1 | 7.1 | -35.4 | 1 q. | -9.03E03 | 3.59E05 | 999.6 | 1 q. | -9.03E03 | 3.59E05 | 0.00 | 14.5 | 0.0 | 1 q. | |
| | v 70 35 | 4.3 | 4.3 | 6.6 | 6.6 | -2.5 | 1 q. | 2.88E02 | 1.44E04 | 167.4 | 1 q. | 2.88E02 | 1.44E04 | 0.00 | 1.1 | 0.0 | 1 q. | |
| 3150 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -16.9 | 1 q. | -3.49E03 | 1.23E05 | 708.4 | 1 q. | -3.49E03 | 1.23E05 | 0.00 | 5.0 | 0.0 | 1 q. | |
| | v 100 35 | 9.6 | 9.6 | 7.2 | 7.2 | -13.9 | 1 q. | 8.83E02 | -1.35E05 | 641.5 | 1 q. | 8.83E02 | -1.35E05 | 0.00 | 6.6 | 0.0 | 1 q. | |
| 5027 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -2.6 | 1 q. | 1.10E03 | 1.75E04 | 406.5 | 1 q. | 1.83E03 | 1.50E04 | 0.00 | 1.2 | 0.0 | 1 q. | |
| | v 100 35 | 19.8 | 19.8 | 7.7 | 7.7 | -27.3 | 1 q. | 2.05E04 | 3.83E05 | 1488.6 | 1 q. | 2.05E04 | 3.83E05 | 0.00 | 23.1 | 0.0 | 1 q. | |
| 5377 | o 100 35 | 3.9 | 3.9 | 7.0 | 7.0 | -0.8 | 1 q. | -1.50E02 | -5.97E03 | 36.8 | 1 q. | -1.50E02 | -5.97E03 | 0.00 | 0.2 | 0.0 | 1 q. | |
| | v 50 35 | 6.1 | 6.1 | 7.6 | 7.6 | -14.5 | 1 q. | 1.08E04 | -1.02E05 | 1765.1 | 1 q. | 1.08E04 | -1.02E05 | 0.00 | 15.5 | 0.0 | 1 q. | |

Verifica dei pannelli

Pannello : Pannello da Filo 10 a (1368;665)

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|-------|-------|
| 0.0 | 17.5 |
| 0.0 | 40.0 |
| 35.0 | 40.0 |
| 35.0 | 17.5 |
| 315.0 | 17.5 |
| 315.0 | 40.0 |
| 345.0 | 40.0 |
| 345.0 | 17.5 |
| 630.0 | 17.5 |
| 630.0 | 40.0 |
| 665.0 | 40.0 |
| 665.0 | 17.5 |
| 665.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -40.0 |
| 270.0 | -40.0 |
| 270.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø | X | Y | Ø |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | 664.8 | -10.4 | 12 | 664.8 | 10.4 | 12 | 12.5 | -10.4 | 12 | 12.5 | 10.4 | 12 |
| 32.5 | -10.4 | 12 | 32.5 | 10.4 | 12 | 52.5 | -10.4 | 12 | 52.5 | 10.4 | 12 | 72.5 | -10.4 | 12 |
| 72.5 | 10.4 | 12 | 92.5 | -10.4 | 12 | 92.5 | 10.4 | 12 | 112.5 | -10.4 | 12 | 112.5 | 10.4 | 12 |
| 132.5 | -10.4 | 12 | 132.5 | 10.4 | 12 | 152.5 | -10.4 | 12 | 152.5 | 10.4 | 12 | 172.5 | -10.4 | 12 |
| 172.5 | 10.4 | 12 | 192.5 | -10.4 | 12 | 192.5 | 10.4 | 12 | 212.5 | -10.4 | 12 | 212.5 | 10.4 | 12 |
| 232.5 | -10.4 | 12 | 232.5 | 10.4 | 12 | 252.5 | -10.4 | 12 | 252.5 | 10.4 | 12 | 272.5 | -10.4 | 12 |
| 272.5 | 10.4 | 12 | 292.5 | -10.4 | 12 | 292.5 | 10.4 | 12 | 312.5 | -10.4 | 12 | 312.5 | 10.4 | 12 |
| 332.5 | -10.4 | 12 | 332.5 | 10.4 | 12 | 352.5 | -10.4 | 12 | 352.5 | 10.4 | 12 | 372.5 | -10.4 | 12 |
| 372.5 | 10.4 | 12 | 392.5 | -10.4 | 12 | 392.5 | 10.4 | 12 | 412.5 | -10.4 | 12 | 412.5 | 10.4 | 12 |
| 432.5 | -10.4 | 12 | 432.5 | 10.4 | 12 | 452.5 | -10.4 | 12 | 452.5 | 10.4 | 12 | 472.5 | -10.4 | 12 |
| 472.5 | 10.4 | 12 | 492.5 | -10.4 | 12 | 492.5 | 10.4 | 12 | 512.5 | -10.4 | 12 | 512.5 | 10.4 | 12 |
| 532.5 | -10.4 | 12 | 532.5 | 10.4 | 12 | 552.5 | -10.4 | 12 | 552.5 | 10.4 | 12 | 572.5 | -10.4 | 12 |
| 572.5 | 10.4 | 12 | 592.5 | -10.4 | 12 | 592.5 | 10.4 | 12 | 612.5 | -10.4 | 12 | 612.5 | 10.4 | 12 |
| 632.5 | -10.4 | 12 | 632.5 | 10.4 | 12 | 652.5 | -10.4 | 12 | 652.5 | 10.4 | 12 | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|-----|------|
| 0.0 | 17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

0.0 107.5
35.0 107.5
35.0 17.5
315.0 17.5
315.0 107.5
345.0 107.5
345.0 17.5
630.0 17.5
630.0 107.5
665.0 107.5
665.0 17.5
665.0 -17.5
305.0 -17.5
305.0 -107.5
270.0 -107.5
270.0 -17.5
0.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | 664.8 | -10.4 | 12 | 664.8 | 10.4 | 12 | 12.5 | -10.4 | 12 | 12.5 | 10.4 | 12 |
| 32.5 | -10.4 | 12 | 32.5 | 10.4 | 12 | 52.5 | -10.4 | 12 | 52.5 | 10.4 | 12 | 72.5 | -10.4 | 12 |
| 72.5 | 10.4 | 12 | 92.5 | -10.4 | 12 | 92.5 | 10.4 | 12 | 112.5 | -10.4 | 12 | 112.5 | 10.4 | 12 |
| 132.5 | -10.4 | 12 | 132.5 | 10.4 | 12 | 152.5 | -10.4 | 12 | 152.5 | 10.4 | 12 | 172.5 | -10.4 | 12 |
| 172.5 | 10.4 | 12 | 192.5 | -10.4 | 12 | 192.5 | 10.4 | 12 | 212.5 | -10.4 | 12 | 212.5 | 10.4 | 12 |
| 232.5 | -10.4 | 12 | 232.5 | 10.4 | 12 | 252.5 | -10.4 | 12 | 252.5 | 10.4 | 12 | 272.5 | -10.4 | 12 |
| 272.5 | 10.4 | 12 | 292.5 | -10.4 | 12 | 292.5 | 10.4 | 12 | 312.5 | -10.4 | 12 | 312.5 | 10.4 | 12 |
| 332.5 | -10.4 | 12 | 332.5 | 10.4 | 12 | 352.5 | -10.4 | 12 | 352.5 | 10.4 | 12 | 372.5 | -10.4 | 12 |
| 372.5 | 10.4 | 12 | 392.5 | -10.4 | 12 | 392.5 | 10.4 | 12 | 412.5 | -10.4 | 12 | 412.5 | 10.4 | 12 |
| 432.5 | -10.4 | 12 | 432.5 | 10.4 | 12 | 452.5 | -10.4 | 12 | 452.5 | 10.4 | 12 | 472.5 | -10.4 | 12 |
| 472.5 | 10.4 | 12 | 492.5 | -10.4 | 12 | 492.5 | 10.4 | 12 | 512.5 | -10.4 | 12 | 512.5 | 10.4 | 12 |
| 532.5 | -10.4 | 12 | 532.5 | 10.4 | 12 | 552.5 | -10.4 | 12 | 552.5 | 10.4 | 12 | 572.5 | -10.4 | 12 |
| 572.5 | 10.4 | 12 | 592.5 | -10.4 | 12 | 592.5 | 10.4 | 12 | 612.5 | -10.4 | 12 | 612.5 | 10.4 | 12 |
| 632.5 | -10.4 | 12 | 632.5 | 10.4 | 12 | 652.5 | -10.4 | 12 | 652.5 | 10.4 | 12 | | | |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|-------|--------|
| 0.0 | 17.5 |
| 0.0 | 108.3 |
| 35.0 | 108.3 |
| 35.0 | 17.5 |
| 315.0 | 17.5 |
| 315.0 | 108.3 |
| 345.0 | 108.3 |
| 345.0 | 17.5 |
| 630.0 | 17.5 |
| 630.0 | 108.3 |
| 665.0 | 108.3 |
| 665.0 | 17.5 |
| 665.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -108.3 |
| 270.0 | -108.3 |
| 270.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|-------|--------|
| 0.0 | 17.5 |
| 0.0 | 100.8 |
| 35.0 | 100.8 |
| 35.0 | 17.5 |
| 630.0 | 17.5 |
| 630.0 | 100.8 |
| 665.0 | 100.8 |
| 665.0 | 17.5 |
| 665.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -100.8 |
| 270.0 | -100.8 |
| 270.0 | -17.5 |
| 0.0 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 300

Coordinate dei vertici

| X | Y |
|-------|-------|
| 0.0 | 17.5 |
| 0.0 | 67.0 |
| 35.0 | 67.0 |
| 35.0 | 17.5 |
| 630.0 | 17.5 |
| 630.0 | 67.0 |
| 665.0 | 67.0 |
| 665.0 | 17.5 |
| 665.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -67.0 |
| 270.0 | -67.0 |
| 270.0 | -17.5 |
| 0.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|-------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 665.0 | 17.5 |
| 665.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 455

Coordinate dei vertici

| X | Y |
|-------|-------|
| 0.0 | -17.5 |
| 0.0 | 17.5 |
| 665.0 | 17.5 |
| 665.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 498

Coordinate dei vertici

| X | Y |
|---|---|
|---|---|

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

0.0 -17.5
0.0 17.5
665.0 17.5
665.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Sezione a quota 540

Coordinate dei vertici

X Y
0.0 -17.5
0.0 17.5
665.0 17.5
665.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 5.5 | -10.5 | 10 | 25.5 | -10.5 | 10 | 45.5 | -10.5 | 10 | 65.5 | -10.5 | 10 | 85.5 | -10.5 | 10 |
| 105.5 | -10.5 | 10 | 125.5 | -10.5 | 10 | 145.5 | -10.5 | 10 | 165.5 | -10.5 | 10 | 185.5 | -10.5 | 10 |
| 205.5 | -10.5 | 10 | 225.5 | -10.5 | 10 | 245.5 | -10.5 | 10 | 265.5 | -10.5 | 10 | 285.5 | -10.5 | 10 |
| 305.5 | -10.5 | 10 | 325.5 | -10.5 | 10 | 345.5 | -10.5 | 10 | 365.5 | -10.5 | 10 | 385.5 | -10.5 | 10 |
| 405.5 | -10.5 | 10 | 425.5 | -10.5 | 10 | 445.5 | -10.5 | 10 | 465.5 | -10.5 | 10 | 485.5 | -10.5 | 10 |
| 505.5 | -10.5 | 10 | 525.5 | -10.5 | 10 | 545.5 | -10.5 | 10 | 565.5 | -10.5 | 10 | 585.5 | -10.5 | 10 |
| 605.5 | -10.5 | 10 | 625.5 | -10.5 | 10 | 645.5 | -10.5 | 10 | 5.5 | 10.5 | 10 | 25.5 | 10.5 | 10 |
| 45.5 | 10.5 | 10 | 65.5 | 10.5 | 10 | 85.5 | 10.5 | 10 | 105.5 | 10.5 | 10 | 125.5 | 10.5 | 10 |
| 145.5 | 10.5 | 10 | 165.5 | 10.5 | 10 | 185.5 | 10.5 | 10 | 205.5 | 10.5 | 10 | 225.5 | 10.5 | 10 |
| 245.5 | 10.5 | 10 | 265.5 | 10.5 | 10 | 285.5 | 10.5 | 10 | 305.5 | 10.5 | 10 | 325.5 | 10.5 | 10 |
| 345.5 | 10.5 | 10 | 365.5 | 10.5 | 10 | 385.5 | 10.5 | 10 | 405.5 | 10.5 | 10 | 425.5 | 10.5 | 10 |
| 445.5 | 10.5 | 10 | 465.5 | 10.5 | 10 | 485.5 | 10.5 | 10 | 505.5 | 10.5 | 10 | 525.5 | 10.5 | 10 |
| 545.5 | 10.5 | 10 | 565.5 | 10.5 | 10 | 585.5 | 10.5 | 10 | 605.5 | 10.5 | 10 | 625.5 | 10.5 | 10 |
| 645.5 | 10.5 | 10 | | | | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fcd | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|-----|------|-----|
| 188 | 14 | 238 | 198 | 608 | 665 | 3 | 198 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|---------|----------|--------|--------|--------|-----------------|
| 0 | -392385 | -4237647 | -51737 | -51737 | -51737 | 36.8854 1 SLV |
| 0 | -500067 | -3134920 | -46437 | -39041 | -46437 | 30.3309 16 SLV |
| 68 | -41686 | -3336815 | -41213 | -41213 | -41213 | 116.4420 2 SLV |
| 68 | -82155 | -2349968 | -42837 | -30251 | -42837 | 115.0769 14 SLV |
| 135 | -316015 | -2106140 | -33976 | -33976 | -33976 | 99.0634 2 SLV |
| 135 | -661623 | -2037975 | -11009 | -23643 | -11009 | 38.0440 3 SLV |
| 165 | -285773 | -1519658 | -30495 | -30495 | -30495 | 105.5699 3 SLV |
| 165 | -593185 | -1299269 | -11755 | -20912 | -11755 | 42.9776 3 SLV |
| 300 | 259652 | -689925 | -27431 | -27431 | -27431 | 127.9673 2 SLV |
| 300 | 382760 | 930130 | -24145 | -20730 | -24145 | 92.7122 2 SLV |
| 435 | 104995 | 114758 | -18018 | -18018 | -18018 | 160.8265 3 SLV |
| 435 | 554130 | 481684 | -14110 | -13896 | -14110 | 8.9112 3 SLV |
| 455 | 78730 | 505824 | -15098 | -15098 | -15098 | 182.3375 3 SLV |
| 455 | 520265 | 507152 | -10727 | -11404 | -10727 | 8.5455 3 SLV |
| 498 | 56453 | 366050 | -11253 | -11253 | -11253 | 249.6840 3 SLV |
| 498 | 273366 | 457991 | -7586 | -8446 | -7586 | 18.3358 3 SLV |
| 540 | 16297 | 159085 | -2662 | -2662 | -2662 | 850.5340 3 SLV |
| 540 | 67601 | 191032 | -1613 | -1975 | -1613 | 65.5311 1 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|-----------------|
| 0 | -51497 | -1980103 | 38.4511 14 SLV |
| 68 | -42837 | -2665849 | 62.2326 14 SLV |
| 135 | -36316 | -2673469 | 73.6164 13 SLV |
| 165 | -32010 | -2409330 | 75.2689 9 SLV |
| 300 | -26040 | -2142651 | 82.2843 6 SLV |
| 435 | -16308 | -1751521 | 107.4044 5 SLV |
| 455 | -13485 | -1751521 | 129.8900 9 SLV |
| 498 | -10677 | -1751521 | 164.0488 9 SLV |
| 540 | -2777 | -1751521 | 630.6335 13 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | VrEd comb |
|-------|---------|--------|---------------|
| 0 | 1.00 | 2835 | 886029 3 SLV |
| 0 | 1.00 | 44304 | 885759 10 SLV |
| 68 | 1.00 | 2756 | 883840 3 SLV |
| 68 | 1.00 | 45076 | 883935 10 SLV |
| 135 | 1.00 | 5588 | 882373 3 SLV |
| 135 | 1.00 | 47386 | 882627 10 SLV |
| 165 | 1.00 | -34001 | 882066 2 SLV |
| 165 | 1.00 | -45748 | 878695 7 SLV |
| 300 | 1.00 | -24291 | 881247 2 SLV |
| 300 | 1.00 | -38032 | 878665 7 SLV |
| 435 | 1.00 | 672 | 879361 1 SLV |
| 435 | 1.00 | -27642 | 877780 11 SLV |
| 455 | 1.00 | 3828 | 878793 1 SLV |
| 455 | 1.00 | 32309 | 878403 6 SLV |
| 498 | 1.00 | 3828 | 878024 1 SLV |
| 498 | 1.00 | 33385 | 877823 6 SLV |
| 540 | 1.00 | 5527 | 876297 1 SLV |
| 540 | 1.00 | 31166 | 876224 6 SLV |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-------|--------|--------|--------|--------|--------|--------|
| 0 | 128.2 | 0.0039 | 0.0055 | 2835 | -51343 | 286328 | 3 SLU |
| 0 | 128.2 | 0.0039 | 0.0055 | 44304 | -49993 | 286328 | 10 SLV |
| 68 | 116.0 | 0.0055 | 0.0050 | 2756 | -40398 | 398996 | 3 SLU |
| 68 | 116.0 | 0.0055 | 0.0050 | 45076 | -40869 | 398996 | 10 SLV |
| 135 | 51.8 | 0.0055 | 0.0022 | 5588 | -33060 | 398996 | 3 SLU |
| 135 | 51.8 | 0.0055 | 0.0022 | 47386 | -34331 | 398996 | 10 SLV |
| 165 | 51.8 | 0.0055 | 0.0022 | -34001 | -31525 | 398996 | 2 SLU |
| 165 | 51.8 | 0.0055 | 0.0022 | -45748 | -14670 | 398996 | 7 SLV |
| 300 | 51.8 | 0.0055 | 0.0022 | -24291 | -27431 | 398996 | 2 SLU |
| 300 | 51.8 | 0.0055 | 0.0022 | -38032 | -14520 | 398996 | 7 SLV |
| 435 | 51.8 | 0.0068 | 0.0022 | 672 | -18001 | 493185 | 1 SLU |
| 435 | 51.8 | 0.0068 | 0.0022 | -27642 | -10097 | 493185 | 11 SLV |
| 455 | 51.8 | 0.0061 | 0.0022 | 3828 | -15161 | 446090 | 1 SLU |
| 455 | 51.8 | 0.0061 | 0.0022 | 32309 | -13212 | 446090 | 6 SLV |
| 498 | 51.8 | 0.0055 | 0.0022 | 3828 | -11316 | 398996 | 1 SLU |
| 498 | 51.8 | 0.0055 | 0.0022 | 33385 | -10314 | 398996 | 6 SLV |
| 540 | 51.8 | 0.0050 | 0.0022 | 5527 | -2682 | 367279 | 1 SLU |
| 540 | 51.8 | 0.0050 | 0.0022 | 31166 | -2316 | 367279 | 6 SLV |

Pannello : Pannello da (1368;665) a Filo 14

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| 652.3 | 40.0 |
| 665.0 | 40.0 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 40.0 |
| 1340.0 | 40.0 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -40.0 |
| 1305.0 | -40.0 |
| 1305.0 | -17.5 |
| 665.0 | -17.5 |
| 652.3 | -4.8 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 665.5 | -10.5 | 10 | 685.5 | -10.5 | 10 | 705.5 | -10.5 | 10 | 725.5 | -10.5 | 10 | 745.5 | -10.5 | 10 |
| 765.5 | -10.5 | 10 | 785.5 | -10.5 | 10 | 805.5 | -10.5 | 10 | 825.5 | -10.5 | 10 | 845.5 | -10.5 | 10 |
| 865.5 | -10.5 | 10 | 885.5 | -10.5 | 10 | 905.5 | -10.5 | 10 | 925.5 | -10.5 | 10 | 945.5 | -10.5 | 10 |
| 965.5 | -10.5 | 10 | 985.5 | -10.5 | 10 | 1005.5 | -10.5 | 10 | 1025.5 | -10.5 | 10 | 1045.5 | -10.5 | 10 |
| 1065.5 | -10.5 | 10 | 1085.5 | -10.5 | 10 | 1105.5 | -10.5 | 10 | 1125.5 | -10.5 | 10 | 1145.5 | -10.5 | 10 |
| 1165.5 | -10.5 | 10 | 1185.5 | -10.5 | 10 | 1205.5 | -10.5 | 10 | 1225.5 | -10.5 | 10 | 1245.5 | -10.5 | 10 |
| 1265.5 | -10.5 | 10 | 1285.5 | -10.5 | 10 | 1305.5 | -10.5 | 10 | 1325.5 | -10.5 | 10 | 1345.5 | -10.5 | 10 |
| 1365.5 | -10.5 | 10 | 1385.5 | -10.5 | 10 | 665.5 | 10.5 | 10 | 685.5 | 10.5 | 10 | 705.5 | 10.5 | 10 |
| 725.5 | 10.5 | 10 | 745.5 | 10.5 | 10 | 765.5 | 10.5 | 10 | 785.5 | 10.5 | 10 | 805.5 | 10.5 | 10 |
| 825.5 | 10.5 | 10 | 845.5 | 10.5 | 10 | 865.5 | 10.5 | 10 | 885.5 | 10.5 | 10 | 905.5 | 10.5 | 10 |
| 925.5 | 10.5 | 10 | 945.5 | 10.5 | 10 | 965.5 | 10.5 | 10 | 985.5 | 10.5 | 10 | 1005.5 | 10.5 | 10 |
| 1025.5 | 10.5 | 10 | 1045.5 | 10.5 | 10 | 1065.5 | 10.5 | 10 | 1085.5 | 10.5 | 10 | 1105.5 | 10.5 | 10 |
| 1125.5 | 10.5 | 10 | 1145.5 | 10.5 | 10 | 1165.5 | 10.5 | 10 | 1185.5 | 10.5 | 10 | 1205.5 | 10.5 | 10 |
| 1225.5 | 10.5 | 10 | 1245.5 | 10.5 | 10 | 1265.5 | 10.5 | 10 | 1285.5 | 10.5 | 10 | 1305.5 | 10.5 | 10 |
| 1325.5 | 10.5 | 10 | 1345.5 | 10.5 | 10 | 1365.5 | 10.5 | 10 | 1385.5 | 10.5 | 10 | 664.8 | -10.4 | 12 |
| 664.8 | 10.4 | 12 | 684.8 | -10.4 | 12 | 684.8 | 10.4 | 12 | 704.8 | -10.4 | 12 | 704.8 | 10.4 | 12 |
| 724.8 | -10.4 | 12 | 724.8 | 10.4 | 12 | 744.8 | -10.4 | 12 | 744.8 | 10.4 | 12 | 764.8 | -10.4 | 12 |
| 764.8 | 10.4 | 12 | 784.8 | -10.4 | 12 | 784.8 | 10.4 | 12 | 804.8 | -10.4 | 12 | 804.8 | 10.4 | 12 |
| 824.8 | -10.4 | 12 | 824.8 | 10.4 | 12 | 844.8 | -10.4 | 12 | 844.8 | 10.4 | 12 | 864.8 | -10.4 | 12 |
| 864.8 | 10.4 | 12 | 884.8 | -10.4 | 12 | 884.8 | 10.4 | 12 | 904.8 | -10.4 | 12 | 904.8 | 10.4 | 12 |
| 924.8 | -10.4 | 12 | 924.8 | 10.4 | 12 | 944.8 | -10.4 | 12 | 944.8 | 10.4 | 12 | 964.8 | -10.4 | 12 |
| 964.8 | 10.4 | 12 | 984.8 | -10.4 | 12 | 984.8 | 10.4 | 12 | 1004.8 | -10.4 | 12 | 1004.8 | 10.4 | 12 |
| 1024.8 | -10.4 | 12 | 1024.8 | 10.4 | 12 | 1044.8 | -10.4 | 12 | 1044.8 | 10.4 | 12 | 1064.8 | -10.4 | 12 |
| 1064.8 | 10.4 | 12 | 1084.8 | -10.4 | 12 | 1084.8 | 10.4 | 12 | 1104.8 | -10.4 | 12 | 1104.8 | 10.4 | 12 |
| 1124.8 | -10.4 | 12 | 1124.8 | 10.4 | 12 | 1144.8 | -10.4 | 12 | 1144.8 | 10.4 | 12 | 1164.8 | -10.4 | 12 |
| 1164.8 | 10.4 | 12 | 1184.8 | -10.4 | 12 | 1184.8 | 10.4 | 12 | 1204.8 | -10.4 | 12 | 1204.8 | 10.4 | 12 |
| 1224.8 | -10.4 | 12 | 1224.8 | 10.4 | 12 | 1244.8 | -10.4 | 12 | 1244.8 | 10.4 | 12 | 1264.8 | -10.4 | 12 |
| 1264.8 | 10.4 | 12 | 1284.8 | -10.4 | 12 | 1284.8 | 10.4 | 12 | 1304.8 | -10.4 | 12 | 1304.8 | 10.4 | 12 |
| 1324.8 | -10.4 | 12 | 1324.8 | 10.4 | 12 | 1344.8 | -10.4 | 12 | 1344.8 | 10.4 | 12 | 1364.8 | -10.4 | 12 |
| 1364.8 | 10.4 | 12 | 1384.8 | -10.4 | 12 | 1384.8 | 10.4 | 12 | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|-------|
| 652.3 | 91.9 |
| 665.0 | 91.9 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 91.9 |
| 1340.0 | 91.9 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -91.9 |
| 1305.0 | -91.9 |
| 1305.0 | -17.5 |
| 665.0 | -17.5 |
| 652.3 | -4.8 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 665.5 | -10.5 | 10 | 685.5 | -10.5 | 10 | 705.5 | -10.5 | 10 | 725.5 | -10.5 | 10 | 745.5 | -10.5 | 10 |
| 765.5 | -10.5 | 10 | 785.5 | -10.5 | 10 | 805.5 | -10.5 | 10 | 825.5 | -10.5 | 10 | 845.5 | -10.5 | 10 |
| 865.5 | -10.5 | 10 | 885.5 | -10.5 | 10 | 905.5 | -10.5 | 10 | 925.5 | -10.5 | 10 | 945.5 | -10.5 | 10 |
| 965.5 | -10.5 | 10 | 985.5 | -10.5 | 10 | 1005.5 | -10.5 | 10 | 1025.5 | -10.5 | 10 | 1045.5 | -10.5 | 10 |
| 1065.5 | -10.5 | 10 | 1085.5 | -10.5 | 10 | 1105.5 | -10.5 | 10 | 1125.5 | -10.5 | 10 | 1145.5 | -10.5 | 10 |
| 1165.5 | -10.5 | 10 | 1185.5 | -10.5 | 10 | 1205.5 | -10.5 | 10 | 1225.5 | -10.5 | 10 | 1245.5 | -10.5 | 10 |
| 1265.5 | -10.5 | 10 | 1285.5 | -10.5 | 10 | 1305.5 | -10.5 | 10 | 1325.5 | -10.5 | 10 | 1345.5 | -10.5 | 10 |
| 1365.5 | -10.5 | 10 | 1385.5 | -10.5 | 10 | 665.5 | 10.5 | 10 | 685.5 | 10.5 | 10 | 705.5 | 10.5 | 10 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 725.5 | 10.5 | 10 | 745.5 | 10.5 | 10 | 765.5 | 10.5 | 10 | 785.5 | 10.5 | 10 | 805.5 | 10.5 | 10 |
| 825.5 | 10.5 | 10 | 845.5 | 10.5 | 10 | 865.5 | 10.5 | 10 | 885.5 | 10.5 | 10 | 905.5 | 10.5 | 10 |
| 925.5 | 10.5 | 10 | 945.5 | 10.5 | 10 | 965.5 | 10.5 | 10 | 985.5 | 10.5 | 10 | 1005.5 | 10.5 | 10 |
| 1025.5 | 10.5 | 10 | 1045.5 | 10.5 | 10 | 1065.5 | 10.5 | 10 | 1085.5 | 10.5 | 10 | 1105.5 | 10.5 | 10 |
| 1125.5 | 10.5 | 10 | 1145.5 | 10.5 | 10 | 1165.5 | 10.5 | 10 | 1185.5 | 10.5 | 10 | 1205.5 | 10.5 | 10 |
| 1225.5 | 10.5 | 10 | 1245.5 | 10.5 | 10 | 1265.5 | 10.5 | 10 | 1285.5 | 10.5 | 10 | 1305.5 | 10.5 | 10 |
| 1325.5 | 10.5 | 10 | 1345.5 | 10.5 | 10 | 1365.5 | 10.5 | 10 | 1385.5 | 10.5 | 10 | 664.8 | -10.4 | 12 |
| 664.8 | 10.4 | 12 | 684.8 | -10.4 | 12 | 684.8 | 10.4 | 12 | 704.8 | -10.4 | 12 | 704.8 | 10.4 | 12 |
| 724.8 | -10.4 | 12 | 724.8 | 10.4 | 12 | 744.8 | -10.4 | 12 | 744.8 | 10.4 | 12 | 764.8 | -10.4 | 12 |
| 764.8 | 10.4 | 12 | 784.8 | -10.4 | 12 | 784.8 | 10.4 | 12 | 804.8 | -10.4 | 12 | 804.8 | 10.4 | 12 |
| 824.8 | -10.4 | 12 | 824.8 | 10.4 | 12 | 844.8 | -10.4 | 12 | 844.8 | 10.4 | 12 | 864.8 | -10.4 | 12 |
| 864.8 | 10.4 | 12 | 884.8 | -10.4 | 12 | 884.8 | 10.4 | 12 | 904.8 | -10.4 | 12 | 904.8 | 10.4 | 12 |
| 924.8 | -10.4 | 12 | 924.8 | 10.4 | 12 | 944.8 | -10.4 | 12 | 944.8 | 10.4 | 12 | 964.8 | -10.4 | 12 |
| 964.8 | 10.4 | 12 | 984.8 | -10.4 | 12 | 984.8 | 10.4 | 12 | 1004.8 | -10.4 | 12 | 1004.8 | 10.4 | 12 |
| 1024.8 | -10.4 | 12 | 1024.8 | 10.4 | 12 | 1044.8 | -10.4 | 12 | 1044.8 | 10.4 | 12 | 1064.8 | -10.4 | 12 |
| 1064.8 | 10.4 | 12 | 1084.8 | -10.4 | 12 | 1084.8 | 10.4 | 12 | 1104.8 | -10.4 | 12 | 1104.8 | 10.4 | 12 |
| 1124.8 | -10.4 | 12 | 1124.8 | 10.4 | 12 | 1144.8 | -10.4 | 12 | 1144.8 | 10.4 | 12 | 1164.8 | -10.4 | 12 |
| 1164.8 | 10.4 | 12 | 1184.8 | -10.4 | 12 | 1184.8 | 10.4 | 12 | 1204.8 | -10.4 | 12 | 1204.8 | 10.4 | 12 |
| 1224.8 | -10.4 | 12 | 1224.8 | 10.4 | 12 | 1244.8 | -10.4 | 12 | 1244.8 | 10.4 | 12 | 1264.8 | -10.4 | 12 |
| 1264.8 | 10.4 | 12 | 1284.8 | -10.4 | 12 | 1284.8 | 10.4 | 12 | 1304.8 | -10.4 | 12 | 1304.8 | 10.4 | 12 |
| 1324.8 | -10.4 | 12 | 1324.8 | 10.4 | 12 | 1344.8 | -10.4 | 12 | 1344.8 | 10.4 | 12 | 1364.8 | -10.4 | 12 |
| 1364.8 | 10.4 | 12 | 1384.8 | -10.4 | 12 | 1384.8 | 10.4 | 12 | | | | | | |

Sezione a quota 135
Coordinate dei vertici

| | |
|--------|-------|
| X | Y |
| 652.3 | 75.0 |
| 665.0 | 75.0 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 75.0 |
| 1340.0 | 75.0 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -75.0 |
| 1305.0 | -75.0 |
| 1305.0 | -17.5 |
| 665.0 | -17.5 |
| 652.3 | -4.8 |

Armature verticali

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 665.5 | -10.5 | 10 | 685.5 | -10.5 | 10 | 705.5 | -10.5 | 10 | 725.5 | -10.5 | 10 | 745.5 | -10.5 | 10 |
| 765.5 | -10.5 | 10 | 785.5 | -10.5 | 10 | 805.5 | -10.5 | 10 | 825.5 | -10.5 | 10 | 845.5 | -10.5 | 10 |
| 865.5 | -10.5 | 10 | 885.5 | -10.5 | 10 | 905.5 | -10.5 | 10 | 925.5 | -10.5 | 10 | 945.5 | -10.5 | 10 |
| 965.5 | -10.5 | 10 | 985.5 | -10.5 | 10 | 1005.5 | -10.5 | 10 | 1025.5 | -10.5 | 10 | 1045.5 | -10.5 | 10 |
| 1065.5 | -10.5 | 10 | 1085.5 | -10.5 | 10 | 1105.5 | -10.5 | 10 | 1125.5 | -10.5 | 10 | 1145.5 | -10.5 | 10 |
| 1165.5 | -10.5 | 10 | 1185.5 | -10.5 | 10 | 1205.5 | -10.5 | 10 | 1225.5 | -10.5 | 10 | 1245.5 | -10.5 | 10 |
| 1265.5 | -10.5 | 10 | 1285.5 | -10.5 | 10 | 1305.5 | -10.5 | 10 | 1325.5 | -10.5 | 10 | 1345.5 | -10.5 | 10 |
| 1365.5 | -10.5 | 10 | 1385.5 | -10.5 | 10 | 665.5 | 10.5 | 10 | 685.5 | 10.5 | 10 | 705.5 | 10.5 | 10 |
| 725.5 | 10.5 | 10 | 745.5 | 10.5 | 10 | 765.5 | 10.5 | 10 | 785.5 | 10.5 | 10 | 805.5 | 10.5 | 10 |
| 825.5 | 10.5 | 10 | 845.5 | 10.5 | 10 | 865.5 | 10.5 | 10 | 885.5 | 10.5 | 10 | 905.5 | 10.5 | 10 |
| 925.5 | 10.5 | 10 | 945.5 | 10.5 | 10 | 965.5 | 10.5 | 10 | 985.5 | 10.5 | 10 | 1005.5 | 10.5 | 10 |
| 1025.5 | 10.5 | 10 | 1045.5 | 10.5 | 10 | 1065.5 | 10.5 | 10 | 1085.5 | 10.5 | 10 | 1105.5 | 10.5 | 10 |
| 1125.5 | 10.5 | 10 | 1145.5 | 10.5 | 10 | 1165.5 | 10.5 | 10 | 1185.5 | 10.5 | 10 | 1205.5 | 10.5 | 10 |
| 1225.5 | 10.5 | 10 | 1245.5 | 10.5 | 10 | 1265.5 | 10.5 | 10 | 1285.5 | 10.5 | 10 | 1305.5 | 10.5 | 10 |
| 1325.5 | 10.5 | 10 | 1345.5 | 10.5 | 10 | 1365.5 | 10.5 | 10 | 1385.5 | 10.5 | 10 | | | |

Sezione a quota 165
Coordinate dei vertici

| | |
|--------|-------|
| X | Y |
| 652.3 | 67.5 |
| 665.0 | 67.5 |
| 665.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 67.5 |
| 1340.0 | 67.5 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -67.5 |
| 1305.0 | -67.5 |
| 1305.0 | -17.5 |
| 665.0 | -17.5 |
| 652.3 | -4.8 |

Armature verticali

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
| 665.5 | -10.5 | 10 | 685.5 | -10.5 | 10 | 705.5 | -10.5 | 10 | 725.5 | -10.5 | 10 | 745.5 | -10.5 | 10 |
| 765.5 | -10.5 | 10 | 785.5 | -10.5 | 10 | 805.5 | -10.5 | 10 | 825.5 | -10.5 | 10 | 845.5 | -10.5 | 10 |
| 865.5 | -10.5 | 10 | 885.5 | -10.5 | 10 | 905.5 | -10.5 | 10 | 925.5 | -10.5 | 10 | 945.5 | -10.5 | 10 |
| 965.5 | -10.5 | 10 | 985.5 | -10.5 | 10 | 1005.5 | -10.5 | 10 | 1025.5 | -10.5 | 10 | 1045.5 | -10.5 | 10 |
| 1065.5 | -10.5 | 10 | 1085.5 | -10.5 | 10 | 1105.5 | -10.5 | 10 | 1125.5 | -10.5 | 10 | 1145.5 | -10.5 | 10 |
| 1165.5 | -10.5 | 10 | 1185.5 | -10.5 | 10 | 1205.5 | -10.5 | 10 | 1225.5 | -10.5 | 10 | 1245.5 | -10.5 | 10 |
| 1265.5 | -10.5 | 10 | 1285.5 | -10.5 | 10 | 1305.5 | -10.5 | 10 | 1325.5 | -10.5 | 10 | 1345.5 | -10.5 | 10 |
| 1365.5 | -10.5 | 10 | 1385.5 | -10.5 | 10 | 665.5 | 10.5 | 10 | 685.5 | 10.5 | 10 | 705.5 | 10.5 | 10 |
| 725.5 | 10.5 | 10 | 745.5 | 10.5 | 10 | 765.5 | 10.5 | 10 | 785.5 | 10.5 | 10 | 805.5 | 10.5 | 10 |
| 825.5 | 10.5 | 10 | 845.5 | 10.5 | 10 | 865.5 | 10.5 | 10 | 885.5 | 10.5 | 10 | 905.5 | 10.5 | 10 |
| 925.5 | 10.5 | 10 | 945.5 | 10.5 | 10 | 965.5 | 10.5 | 10 | 985.5 | 10.5 | 10 | 1005.5 | 10.5 | 10 |
| 1025.5 | 10.5 | 10 | 1045.5 | 10.5 | 10 | 1065.5 | 10.5 | 10 | 1085.5 | 10.5 | 10 | 1105.5 | 10.5 | 10 |
| 1125.5 | 10.5 | 10 | 1145.5 | 10.5 | 10 | 1165.5 | 10.5 | 10 | 1185.5 | 10.5 | 10 | 1205.5 | 10.5 | 10 |
| 1225.5 | 10.5 | 10 | 1245.5 | 10.5 | 10 | 1265.5 | 10.5 | 10 | 1285.5 | 10.5 | 10 | 1305.5 | 10.5 | 10 |
| 1325.5 | 10.5 | 10 | 1345.5 | 10.5 | 10 | 1365.5 | 10.5 | 10 | 1385.5 | 10.5 | 10 | | | |

Sezione a quota 300
Coordinate dei vertici

| | |
|--------|-------|
| X | Y |
| 665.0 | -17.5 |
| 665.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 665.5 | -10.5 | 10 | 685.5 | -10.5 | 10 | 705.5 | -10.5 | 10 | 725.5 | -10.5 | 10 | 745.5 | -10.5 | 10 |
| 765.5 | -10.5 | 10 | 785.5 | -10.5 | 10 | 805.5 | -10.5 | 10 | 825.5 | -10.5 | 10 | 845.5 | -10.5 | 10 |
| 865.5 | -10.5 | 10 | 885.5 | -10.5 | 10 | 905.5 | -10.5 | 10 | 925.5 | -10.5 | 10 | 945.5 | -10.5 | 10 |
| 965.5 | -10.5 | 10 | 985.5 | -10.5 | 10 | 1005.5 | -10.5 | 10 | 1025.5 | -10.5 | 10 | 1045.5 | -10.5 | 10 |
| 1065.5 | -10.5 | 10 | 1085.5 | -10.5 | 10 | 1105.5 | -10.5 | 10 | 1125.5 | -10.5 | 10 | 1145.5 | -10.5 | 10 |
| 1165.5 | -10.5 | 10 | 1185.5 | -10.5 | 10 | 1205.5 | -10.5 | 10 | 1225.5 | -10.5 | 10 | 1245.5 | -10.5 | 10 |
| 1265.5 | -10.5 | 10 | 1285.5 | -10.5 | 10 | 1305.5 | -10.5 | 10 | 1325.5 | -10.5 | 10 | 1345.5 | -10.5 | 10 |
| 1365.5 | -10.5 | 10 | 1385.5 | -10.5 | 10 | 665.5 | 10.5 | 10 | 685.5 | 10.5 | 10 | 705.5 | 10.5 | 10 |
| 725.5 | 10.5 | 10 | 745.5 | 10.5 | 10 | 765.5 | 10.5 | 10 | 785.5 | 10.5 | 10 | 805.5 | 10.5 | 10 |
| 825.5 | 10.5 | 10 | 845.5 | 10.5 | 10 | 865.5 | 10.5 | 10 | 885.5 | 10.5 | 10 | 905.5 | 10.5 | 10 |
| 925.5 | 10.5 | 10 | 945.5 | 10.5 | 10 | 965.5 | 10.5 | 10 | 985.5 | 10.5 | 10 | 1005.5 | 10.5 | 10 |
| 1025.5 | 10.5 | 10 | 1045.5 | 10.5 | 10 | 1065.5 | 10.5 | 10 | 1085.5 | 10.5 | 10 | 1105.5 | 10.5 | 10 |
| 1125.5 | 10.5 | 10 | 1145.5 | 10.5 | 10 | 1165.5 | 10.5 | 10 | 1185.5 | 10.5 | 10 | 1205.5 | 10.5 | 10 |
| 1225.5 | 10.5 | 10 | 1245.5 | 10.5 | 10 | 1265.5 | 10.5 | 10 | 1285.5 | 10.5 | 10 | 1305.5 | 10.5 | 10 |
| 1325.5 | 10.5 | 10 | 1345.5 | 10.5 | 10 | 1365.5 | 10.5 | 10 | 1385.5 | 10.5 | 10 | | | |

Sezione a quota 434

Coordinate dei vertici

| X | Y |
|--------|-------|
| 665.0 | -17.5 |
| 665.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 665.5 | -10.5 | 10 | 685.5 | -10.5 | 10 | 705.5 | -10.5 | 10 | 725.5 | -10.5 | 10 | 745.5 | -10.5 | 10 |
| 765.5 | -10.5 | 10 | 785.5 | -10.5 | 10 | 805.5 | -10.5 | 10 | 825.5 | -10.5 | 10 | 845.5 | -10.5 | 10 |
| 865.5 | -10.5 | 10 | 885.5 | -10.5 | 10 | 905.5 | -10.5 | 10 | 925.5 | -10.5 | 10 | 945.5 | -10.5 | 10 |
| 965.5 | -10.5 | 10 | 985.5 | -10.5 | 10 | 1005.5 | -10.5 | 10 | 1025.5 | -10.5 | 10 | 1045.5 | -10.5 | 10 |
| 1065.5 | -10.5 | 10 | 1085.5 | -10.5 | 10 | 1105.5 | -10.5 | 10 | 1125.5 | -10.5 | 10 | 1145.5 | -10.5 | 10 |
| 1165.5 | -10.5 | 10 | 1185.5 | -10.5 | 10 | 1205.5 | -10.5 | 10 | 1225.5 | -10.5 | 10 | 1245.5 | -10.5 | 10 |
| 1265.5 | -10.5 | 10 | 1285.5 | -10.5 | 10 | 1305.5 | -10.5 | 10 | 1325.5 | -10.5 | 10 | 1345.5 | -10.5 | 10 |
| 1365.5 | -10.5 | 10 | 1385.5 | -10.5 | 10 | 665.5 | 10.5 | 10 | 685.5 | 10.5 | 10 | 705.5 | 10.5 | 10 |
| 725.5 | 10.5 | 10 | 745.5 | 10.5 | 10 | 765.5 | 10.5 | 10 | 785.5 | 10.5 | 10 | 805.5 | 10.5 | 10 |
| 825.5 | 10.5 | 10 | 845.5 | 10.5 | 10 | 865.5 | 10.5 | 10 | 885.5 | 10.5 | 10 | 905.5 | 10.5 | 10 |
| 925.5 | 10.5 | 10 | 945.5 | 10.5 | 10 | 965.5 | 10.5 | 10 | 985.5 | 10.5 | 10 | 1005.5 | 10.5 | 10 |
| 1025.5 | 10.5 | 10 | 1045.5 | 10.5 | 10 | 1065.5 | 10.5 | 10 | 1085.5 | 10.5 | 10 | 1105.5 | 10.5 | 10 |
| 1125.5 | 10.5 | 10 | 1145.5 | 10.5 | 10 | 1165.5 | 10.5 | 10 | 1185.5 | 10.5 | 10 | 1205.5 | 10.5 | 10 |
| 1225.5 | 10.5 | 10 | 1245.5 | 10.5 | 10 | 1265.5 | 10.5 | 10 | 1285.5 | 10.5 | 10 | 1305.5 | 10.5 | 10 |
| 1325.5 | 10.5 | 10 | 1345.5 | 10.5 | 10 | 1365.5 | 10.5 | 10 | 1385.5 | 10.5 | 10 | | | |

Verifica eseguita con comportamento non dissipativo

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fcd | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|-----|------|-----|
| 188 | 14 | 230 | 190 | 475 | 733 | 1 | 190 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|----------|----------|--------|--------|--------|----------------|
| 0 | -2835042 | 5490316 | -61545 | -61545 | -61545 | 3.2747 2 SLV |
| 0 | -3282182 | 4527212 | -46059 | -45176 | -46059 | 2.6174 14 SLV |
| 68 | -422682 | 4199761 | -51840 | -51840 | -51840 | 51.6789 2 SLV |
| 68 | -755852 | 3750323 | -39130 | -37927 | -39130 | 25.0309 14 SLV |
| 135 | 711219 | 3193841 | -46293 | -46293 | -46293 | 35.5067 3 SLV |
| 135 | 686363 | 1521525 | -30519 | -34055 | -30519 | 34.8609 1 SLV |
| 165 | 937015 | 2588528 | -42770 | -42770 | -42770 | 21.4773 3 SLV |
| 165 | 896630 | 1247274 | -28401 | -31221 | -28401 | 21.2503 1 SLV |
| 300 | 821667 | -1605079 | -14017 | -14017 | -14017 | 5.5794 3 SLV |
| 300 | 1007165 | -602493 | -9159 | -8294 | -9159 | 4.1220 14 SLV |
| 434 | -35054 | -571825 | -1564 | -1564 | -1564 | 128.6077 3 SLV |
| 434 | -29704 | 475232 | 1058 | -56 | 1058 | 64.1203 15 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|----------------|
| 0 | -55782 | -2096604 | 37.5856 11 SLV |
| 68 | -45429 | -2419315 | 53.2545 11 SLV |
| 135 | -38870 | -2314337 | 59.5406 11 SLV |
| 165 | -34748 | -2267680 | 65.2600 11 SLV |
| 300 | -12046 | -1929307 | 160.1606 7 SLV |
| 434 | -2737 | -1929307 | 704.7899 6 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrcd | comb |
|-------|---------|--------|--------|--------|
| 0 | 1.00 | 33578 | 977117 | 1 SLV |
| 0 | 1.00 | 77425 | 971851 | 6 SLV |
| 68 | 1.00 | 33480 | 975139 | 1 SLV |
| 68 | 1.00 | 76985 | 970925 | 6 SLV |
| 135 | 1.00 | 30203 | 974025 | 1 SLV |
| 135 | 1.00 | 73354 | 970584 | 6 SLV |
| 165 | 1.00 | 24786 | 973297 | 1 SLV |
| 165 | 1.00 | 65966 | 970410 | 6 SLV |
| 300 | 1.00 | 16382 | 967521 | 1 SLV |
| 300 | 1.00 | 49019 | 966620 | 6 SLV |
| 434 | 1.00 | -10927 | 964966 | 3 SLV |
| 434 | 1.00 | -26439 | 964654 | 15 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-------|--------|--------|--------|--------|--------|--------|
| 0 | 140.1 | 0.0039 | 0.0055 | 33578 | -62318 | 315392 | 1 SLV |
| 0 | 140.1 | 0.0039 | 0.0055 | 77425 | -35989 | 315392 | 6 SLV |
| 68 | 138.6 | 0.0055 | 0.0054 | 33480 | -52425 | 439495 | 1 SLV |
| 68 | 138.6 | 0.0055 | 0.0054 | 76985 | -31355 | 439495 | 6 SLV |
| 135 | 58.1 | 0.0055 | 0.0023 | 30203 | -46858 | 439495 | 1 SLV |
| 135 | 58.1 | 0.0055 | 0.0023 | 73354 | -29651 | 439495 | 6 SLV |
| 165 | 58.1 | 0.0055 | 0.0023 | 24786 | -43219 | 439495 | 1 SLV |
| 165 | 58.1 | 0.0055 | 0.0023 | 65966 | -28780 | 439495 | 6 SLV |
| 300 | 58.1 | 0.0068 | 0.0023 | 16382 | -14335 | 543245 | 1 SLV |
| 300 | 58.1 | 0.0068 | 0.0023 | 49019 | -9834 | 543245 | 6 SLV |
| 434 | 58.1 | 0.0079 | 0.0023 | -10927 | -1564 | 631144 | 3 SLV |
| 434 | 58.1 | 0.0079 | 0.0023 | -26439 | 1058 | 631144 | 15 SLV |

Pannello P8

Parete fra le coordinate in pianta (1350;288) (3455;288)

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

da quota -40 a quota 455
Valori in daN, cm
C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod | sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|------|-------|----|------|------|-----|-----|----|--------|--------|-------|---------|-------|----------|
| 4089 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | | 3.810 | 13 SLV | -686 | 347863 | -2615 | -1325298 |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | 1.041 | 13 SLV | 20666 | 2448173 | 21518 | -2549180 |
| 4990 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | 6.028 | 14 SLV | 439 | 324514 | 2648 | -1956039 |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | 1.104 | 14 SLV | 31612 | 2187907 | 34894 | -2414992 |
| 5263 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | 8.648 | 14 SLV | -170 | -231723 | -1470 | 2003832 |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | 1.015 | 1 SLV | 10084 | -491542 | 10232 | 498766 |
| 5284 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | 11.889 | 10 SLV | -181 | -169203 | -2158 | 2011608 |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | 1.006 | 14 SLV | 9220 | -507997 | 9279 | 511273 |

Combinazione rara

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|------|-------|----|------|------|-----|-----|----|-------|------|----------|----------|--------|------|----------|----------|--------|------|--------|------|
| 4089 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | | -18.0 | 1 ra | -1.82E02 | 1.92E05 | 656.4 | 1 ra | -1.82E02 | 1.92E05 | 0.00 | 8.9 | 0.0 | 1 ra |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | -93.6 | 1 ra | 1.27E04 | 1.40E06 | 2604.6 | 1 ra | 1.27E04 | 1.40E06 | 0.10 | 0.0 | 98.0 | 1 ra |
| 4990 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -12.5 | 1 ra | 2.26E02 | 1.66E05 | 365.9 | 1 ra | 2.26E02 | 1.66E05 | 0.00 | 7.7 | 0.0 | 1 ra |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | -78.1 | 1 ra | 1.96E04 | 1.18E06 | 2364.8 | 1 ra | 1.96E04 | 1.18E06 | 0.09 | 0.0 | 102.7 | 1 ra |
| 5263 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -8.9 | 1 ra | -1.79E02 | -1.19E05 | 252.4 | 1 ra | -1.79E02 | -1.19E05 | 0.00 | 5.4 | 0.0 | 1 ra |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | -52.9 | 1 ra | 5.97E03 | -2.66E05 | 2693.4 | 1 ra | 5.97E03 | -2.66E05 | 0.00 | 28.4 | 0.0 | 1 ra |
| 5284 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -6.4 | 1 ra | -1.71E02 | -8.49E04 | 179.1 | 1 ra | -1.71E02 | -8.49E04 | 0.00 | 3.8 | 0.0 | 1 ra |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | -57.2 | 1 ra | 5.30E03 | -2.87E05 | 2788.0 | 1 ra | 5.30E03 | -2.87E05 | 0.00 | 30.0 | 0.0 | 1 ra |

Combinazione frequente

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|------|-------|----|------|------|-----|-----|----|-------|------|----------|----------|--------|------|----------|----------|--------|------|--------|------|
| 4089 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | | -16.6 | 3 fr | -2.15E02 | 1.76E05 | 602.2 | 3 fr | -2.15E02 | 1.76E05 | 0.00 | 8.2 | 0.0 | 1 fr |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | -86.5 | 3 fr | 1.18E04 | 1.29E06 | 2406.5 | 3 fr | 1.18E04 | 1.29E06 | 0.09 | 0.0 | 98.0 | 3 fr |
| 4990 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -11.4 | 3 fr | 1.84E02 | 1.51E05 | 332.8 | 3 fr | 1.84E02 | 1.51E05 | 0.00 | 7.0 | 0.0 | 1 fr |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | -71.7 | 3 fr | 1.81E04 | 1.08E06 | 2174.8 | 3 fr | 1.81E04 | 1.08E06 | 0.09 | 0.0 | 102.8 | 3 fr |
| 5263 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -8.2 | 3 fr | -1.80E02 | -1.09E05 | 230.1 | 3 fr | -1.80E02 | -1.09E05 | 0.00 | 4.9 | 0.0 | 1 fr |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | -49.0 | 3 fr | 5.56E03 | -2.46E05 | 2496.4 | 3 fr | 5.56E03 | -2.46E05 | 0.00 | 26.3 | 0.0 | 1 fr |
| 5284 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -5.8 | 3 fr | -1.73E02 | -7.76E04 | 163.4 | 3 fr | -1.73E02 | -7.76E04 | 0.00 | 3.5 | 0.0 | 1 fr |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | -53.0 | 3 fr | 4.96E03 | -2.66E05 | 2587.4 | 3 fr | 4.96E03 | -2.66E05 | 0.00 | 27.8 | 0.0 | 1 fr |

Combinazione quasi permanente

| nod | sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|------|-------|----|------|------|-----|-----|----|-------|------|----------|----------|--------|------|----------|----------|--------|------|--------|------|
| 4089 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | | -11.3 | 1 q. | -2.75E02 | 1.20E05 | 403.6 | 1 q. | -2.75E02 | 1.20E05 | 0.00 | 5.6 | 0.0 | 1 q. |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | -58.5 | 1 q. | 9.30E03 | 8.77E05 | 1655.4 | 1 q. | 9.30E03 | 8.77E05 | 0.06 | 0.0 | 98.4 | 1 q. |
| 4990 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -7.7 | 1 q. | 5.24E01 | 1.03E05 | 224.0 | 1 q. | 5.24E01 | 1.03E05 | 0.00 | 4.7 | 0.0 | 1 q. |
| | v 100 | 35 | 29.7 | 29.7 | 8.1 | 8.1 | | -48.3 | 1 q. | 1.46E04 | 7.34E05 | 1515.1 | 1 q. | 1.46E04 | 7.34E05 | 0.05 | 0.0 | 103.6 | 1 q. |
| 5263 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -5.5 | 1 q. | -1.84E02 | -7.37E04 | 154.5 | 1 q. | -1.84E02 | -7.37E04 | 0.00 | 3.3 | 0.0 | 1 q. |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | -33.2 | 1 q. | 4.64E03 | -1.67E05 | 1787.0 | 1 q. | 4.64E03 | -1.67E05 | 0.00 | 18.3 | 0.0 | 1 q. |
| 5284 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | | -5.5 | 1 q. | -1.85E02 | -7.34E04 | 153.9 | 1 q. | -1.85E02 | -7.34E04 | 0.00 | 3.3 | 0.0 | 1 q. |
| | v 50 | 35 | 5.6 | 5.6 | 7.7 | 7.7 | | -35.9 | 1 q. | 3.86E03 | -1.80E05 | 1808.8 | 1 q. | 3.86E03 | -1.80E05 | 0.00 | 19.1 | 0.0 | 1 q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo

Verifica punto a coordinate x=2403 y=288 z=361

| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
|-------|----|------|------|-----|-----|----|-------|--------|-------|---------|-------|----------|------|-------|
| v 168 | 35 | 47.5 | 47.5 | 8.1 | 8.1 | | 1.039 | 13 SLV | 32679 | 3966419 | 33969 | -4122904 | 2085 | 33001 |

Combinazione rara

Verifica punto a coordinate x=2403 y=288 z=361

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|-------|----|------|------|-----|-----|----|-------|------|---------|---------|--------|------|---------|---------|--------|-----|--------|------|
| v 168 | 35 | 47.5 | 47.5 | 8.1 | 8.1 | | -88.8 | 1 ra | 2.37E04 | 2.19E06 | 2576.7 | 1 ra | 2.37E04 | 2.19E06 | 0.12 | 0.0 | 121.1 | 1 ra |

Combinazione frequente

Verifica punto a coordinate x=2403 y=288 z=361

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|-------|----|------|------|-----|-----|----|-------|------|---------|---------|--------|------|---------|---------|--------|-----|--------|------|
| v 168 | 35 | 47.5 | 47.5 | 8.1 | 8.1 | | -82.0 | 3 fr | 2.22E04 | 2.02E06 | 2383.1 | 3 fr | 2.22E04 | 2.02E06 | 0.11 | 0.0 | 121.1 | 3 fr |

Combinazione quasi permanente

Verifica punto a coordinate x=2403 y=288 z=361

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|-------|----|------|------|-----|-----|----|-------|------|---------|---------|--------|------|---------|---------|--------|-----|--------|------|
| v 168 | 35 | 47.5 | 47.5 | 8.1 | 8.1 | | -55.2 | 1 q. | 1.86E04 | 1.36E06 | 1652.1 | 1 q. | 1.86E04 | 1.36E06 | 0.07 | 0.0 | 121.9 | 1 q. |

Verifica dei pannelli

Pannello : Pannello da (1350;288) a Filo 20

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1350.0 | 17.5 |
| 1350.0 | 40.0 |
| 1385.0 | 40.0 |
| 1385.0 | 17.5 |
| 2385.0 | 17.5 |
| 2385.0 | 40.0 |
| 2420.0 | 40.0 |
| 2420.0 | 17.5 |
| 3420.0 | 17.5 |
| 3420.0 | 40.0 |
| 3455.0 | 40.0 |
| 3455.0 | 17.5 |
| 3455.0 | -17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -40.0 |
| 1350.0 | -40.0 |
| 1350.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1362.5 | -10.5 | 10 | 1382.5 | -10.5 | 10 | 1402.5 | -10.5 | 10 | 1422.5 | -10.5 | 10 | 1442.5 | -10.5 | 10 |
| 1462.5 | -10.5 | 10 | 1482.5 | -10.5 | 10 | 1502.5 | -10.5 | 10 | 1522.5 | -10.5 | 10 | 1542.5 | -10.5 | 10 |
| 1562.5 | -10.5 | 10 | 1582.5 | -10.5 | 10 | 1602.5 | -10.5 | 10 | 1622.5 | -10.5 | 10 | 1642.5 | -10.5 | 10 |
| 1662.5 | -10.5 | 10 | 1682.5 | -10.5 | 10 | 1702.5 | -10.5 | 10 | 1722.5 | -10.5 | 10 | 1742.5 | -10.5 | 10 |
| 1762.5 | -10.5 | 10 | 1782.5 | -10.5 | 10 | 1802.5 | -10.5 | 10 | 1822.5 | -10.5 | 10 | 1842.5 | -10.5 | 10 |
| 1862.5 | -10.5 | 10 | 1882.5 | -10.5 | 10 | 1902.5 | -10.5 | 10 | 1922.5 | -10.5 | 10 | 1942.5 | -10.5 | 10 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 2782.5 | 10.3 | 14 | 2802.5 | -10.3 | 14 | 2802.5 | 10.3 | 14 | 2822.5 | -10.3 | 14 | 2822.5 | 10.3 | 14 |
| 2842.5 | -10.3 | 14 | 2842.5 | 10.3 | 14 | 2862.5 | -10.3 | 14 | 2862.5 | 10.3 | 14 | 2882.5 | -10.3 | 14 |
| 2882.5 | 10.3 | 14 | 2902.5 | -10.3 | 14 | 2902.5 | 10.3 | 14 | 2922.5 | -10.3 | 14 | 2922.5 | 10.3 | 14 |
| 2942.5 | -10.3 | 14 | 2942.5 | 10.3 | 14 | 2962.5 | -10.3 | 14 | 2962.5 | 10.3 | 14 | 2982.5 | -10.3 | 14 |
| 2982.5 | 10.3 | 14 | 3002.5 | -10.3 | 14 | 3002.5 | 10.3 | 14 | 3022.5 | -10.3 | 14 | 3022.5 | 10.3 | 14 |
| 3042.5 | -10.3 | 14 | 3042.5 | 10.3 | 14 | 3062.5 | -10.3 | 14 | 3062.5 | 10.3 | 14 | 3082.5 | -10.3 | 14 |
| 3082.5 | 10.3 | 14 | 3102.5 | -10.3 | 14 | 3102.5 | 10.3 | 14 | 3122.5 | -10.3 | 14 | 3122.5 | 10.3 | 14 |
| 3142.5 | -10.3 | 14 | 3142.5 | 10.3 | 14 | 3162.5 | -10.3 | 14 | 3162.5 | 10.3 | 14 | 3182.5 | -10.3 | 14 |
| 3182.5 | 10.3 | 14 | 3202.5 | -10.3 | 14 | 3202.5 | 10.3 | 14 | 3222.5 | -10.3 | 14 | 3222.5 | 10.3 | 14 |
| 3242.5 | -10.3 | 14 | 3242.5 | 10.3 | 14 | 3262.5 | -10.3 | 14 | 3262.5 | 10.3 | 14 | 3282.5 | -10.3 | 14 |
| 3282.5 | 10.3 | 14 | 3302.5 | -10.3 | 14 | 3302.5 | 10.3 | 14 | 3322.5 | -10.3 | 14 | 3322.5 | 10.3 | 14 |
| 3342.5 | -10.3 | 14 | 3342.5 | 10.3 | 14 | 3362.5 | -10.3 | 14 | 3362.5 | 10.3 | 14 | 3382.5 | -10.3 | 14 |
| 3382.5 | 10.3 | 14 | 3402.5 | -10.3 | 14 | 3402.5 | 10.3 | 14 | 3422.5 | -10.3 | 14 | 3422.5 | 10.3 | 14 |
| 3442.5 | -10.3 | 14 | 3442.5 | 10.3 | 14 | | | | | | | | | |

Sezione a quota 68
Coordinate dei vertici

| X | Y |
|--------|-------|
| 1350.0 | 17.5 |
| 1350.0 | 96.9 |
| 1385.0 | 96.9 |
| 1385.0 | 17.5 |
| 2385.0 | 17.5 |
| 2385.0 | 96.9 |
| 2420.0 | 96.9 |
| 2420.0 | 17.5 |
| 3420.0 | 17.5 |
| 3420.0 | 96.9 |
| 3455.0 | 96.9 |
| 3455.0 | 17.5 |
| 3455.0 | -17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -96.9 |
| 1350.0 | -96.9 |
| 1350.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1362.5 | -10.5 | 10 | 1382.5 | -10.5 | 10 | 1402.5 | -10.5 | 10 | 1422.5 | -10.5 | 10 | 1442.5 | -10.5 | 10 |
| 1462.5 | -10.5 | 10 | 1482.5 | -10.5 | 10 | 1502.5 | -10.5 | 10 | 1522.5 | -10.5 | 10 | 1542.5 | -10.5 | 10 |
| 1562.5 | -10.5 | 10 | 1582.5 | -10.5 | 10 | 1602.5 | -10.5 | 10 | 1622.5 | -10.5 | 10 | 1642.5 | -10.5 | 10 |
| 1662.5 | -10.5 | 10 | 1682.5 | -10.5 | 10 | 1702.5 | -10.5 | 10 | 1722.5 | -10.5 | 10 | 1742.5 | -10.5 | 10 |
| 1762.5 | -10.5 | 10 | 1782.5 | -10.5 | 10 | 1802.5 | -10.5 | 10 | 1822.5 | -10.5 | 10 | 1842.5 | -10.5 | 10 |
| 1862.5 | -10.5 | 10 | 1882.5 | -10.5 | 10 | 1902.5 | -10.5 | 10 | 1922.5 | -10.5 | 10 | 1942.5 | -10.5 | 10 |
| 1962.5 | -10.5 | 10 | 1982.5 | -10.5 | 10 | 2002.5 | -10.5 | 10 | 2022.5 | -10.5 | 10 | 2042.5 | -10.5 | 10 |
| 2062.5 | -10.5 | 10 | 2082.5 | -10.5 | 10 | 2102.5 | -10.5 | 10 | 2122.5 | -10.5 | 10 | 2142.5 | -10.5 | 10 |
| 2162.5 | -10.5 | 10 | 2182.5 | -10.5 | 10 | 2202.5 | -10.5 | 10 | 2222.5 | -10.5 | 10 | 2242.5 | -10.5 | 10 |
| 2262.5 | -10.5 | 10 | 2282.5 | -10.5 | 10 | 2302.5 | -10.5 | 10 | 2322.5 | -10.5 | 10 | 2342.5 | -10.5 | 10 |
| 2362.5 | -10.5 | 10 | 2382.5 | -10.5 | 10 | 2402.5 | -10.5 | 10 | 2422.5 | -10.5 | 10 | 2442.5 | -10.5 | 10 |
| 2462.5 | -10.5 | 10 | 2482.5 | -10.5 | 10 | 2502.5 | -10.5 | 10 | 2522.5 | -10.5 | 10 | 2542.5 | -10.5 | 10 |
| 2562.5 | -10.5 | 10 | 2582.5 | -10.5 | 10 | 2602.5 | -10.5 | 10 | 2622.5 | -10.5 | 10 | 2642.5 | -10.5 | 10 |
| 2662.5 | -10.5 | 10 | 2682.5 | -10.5 | 10 | 2702.5 | -10.5 | 10 | 2722.5 | -10.5 | 10 | 2742.5 | -10.5 | 10 |
| 2762.5 | -10.5 | 10 | 2782.5 | -10.5 | 10 | 2802.5 | -10.5 | 10 | 2822.5 | -10.5 | 10 | 2842.5 | -10.5 | 10 |
| 2862.5 | -10.5 | 10 | 2882.5 | -10.5 | 10 | 2902.5 | -10.5 | 10 | 2922.5 | -10.5 | 10 | 2942.5 | -10.5 | 10 |
| 2962.5 | -10.5 | 10 | 2982.5 | -10.5 | 10 | 3002.5 | -10.5 | 10 | 3022.5 | -10.5 | 10 | 3042.5 | -10.5 | 10 |
| 3062.5 | -10.5 | 10 | 3082.5 | -10.5 | 10 | 3102.5 | -10.5 | 10 | 3122.5 | -10.5 | 10 | 3142.5 | -10.5 | 10 |
| 3162.5 | -10.5 | 10 | 3182.5 | -10.5 | 10 | 3202.5 | -10.5 | 10 | 3222.5 | -10.5 | 10 | 3242.5 | -10.5 | 10 |
| 3262.5 | -10.5 | 10 | 3282.5 | -10.5 | 10 | 3302.5 | -10.5 | 10 | 3322.5 | -10.5 | 10 | 3342.5 | -10.5 | 10 |
| 3362.5 | -10.5 | 10 | 3382.5 | -10.5 | 10 | 3402.5 | -10.5 | 10 | 3422.5 | -10.5 | 10 | 3442.5 | -10.5 | 10 |
| 1362.5 | 10.5 | 10 | 1382.5 | 10.5 | 10 | 1402.5 | 10.5 | 10 | 1422.5 | 10.5 | 10 | 1442.5 | 10.5 | 10 |
| 1462.5 | 10.5 | 10 | 1482.5 | 10.5 | 10 | 1502.5 | 10.5 | 10 | 1522.5 | 10.5 | 10 | 1542.5 | 10.5 | 10 |
| 1562.5 | 10.5 | 10 | 1582.5 | 10.5 | 10 | 1602.5 | 10.5 | 10 | 1622.5 | 10.5 | 10 | 1642.5 | 10.5 | 10 |
| 1662.5 | 10.5 | 10 | 1682.5 | 10.5 | 10 | 1702.5 | 10.5 | 10 | 1722.5 | 10.5 | 10 | 1742.5 | 10.5 | 10 |
| 1762.5 | 10.5 | 10 | 1782.5 | 10.5 | 10 | 1802.5 | 10.5 | 10 | 1822.5 | 10.5 | 10 | 1842.5 | 10.5 | 10 |
| 1862.5 | 10.5 | 10 | 1882.5 | 10.5 | 10 | 1902.5 | 10.5 | 10 | 1922.5 | 10.5 | 10 | 1942.5 | 10.5 | 10 |
| 1962.5 | 10.5 | 10 | 1982.5 | 10.5 | 10 | 2002.5 | 10.5 | 10 | 2022.5 | 10.5 | 10 | 2042.5 | 10.5 | 10 |
| 2062.5 | 10.5 | 10 | 2082.5 | 10.5 | 10 | 2102.5 | 10.5 | 10 | 2122.5 | 10.5 | 10 | 2142.5 | 10.5 | 10 |
| 2162.5 | 10.5 | 10 | 2182.5 | 10.5 | 10 | 2202.5 | 10.5 | 10 | 2222.5 | 10.5 | 10 | 2242.5 | 10.5 | 10 |
| 2262.5 | 10.5 | 10 | 2282.5 | 10.5 | 10 | 2302.5 | 10.5 | 10 | 2322.5 | 10.5 | 10 | 2342.5 | 10.5 | 10 |
| 2362.5 | 10.5 | 10 | 2382.5 | 10.5 | 10 | 2402.5 | 10.5 | 10 | 2422.5 | 10.5 | 10 | 2442.5 | 10.5 | 10 |
| 2462.5 | 10.5 | 10 | 2482.5 | 10.5 | 10 | 2502.5 | 10.5 | 10 | 2522.5 | 10.5 | 10 | 2542.5 | 10.5 | 10 |
| 2562.5 | 10.5 | 10 | 2582.5 | 10.5 | 10 | 2602.5 | 10.5 | 10 | 2622.5 | 10.5 | 10 | 2642.5 | 10.5 | 10 |
| 2662.5 | 10.5 | 10 | 2682.5 | 10.5 | 10 | 2702.5 | 10.5 | 10 | 2722.5 | 10.5 | 10 | 2742.5 | 10.5 | 10 |
| 2762.5 | 10.5 | 10 | 2782.5 | 10.5 | 10 | 2802.5 | 10.5 | 10 | 2822.5 | 10.5 | 10 | 2842.5 | 10.5 | 10 |
| 2862.5 | 10.5 | 10 | 2882.5 | 10.5 | 10 | 2902.5 | 10.5 | 10 | 2922.5 | 10.5 | 10 | 2942.5 | 10.5 | 10 |
| 2962.5 | 10.5 | 10 | 2982.5 | 10.5 | 10 | 3002.5 | 10.5 | 10 | 3022.5 | 10.5 | 10 | 3042.5 | 10.5 | 10 |
| 3062.5 | 10.5 | 10 | 3082.5 | 10.5 | 10 | 3102.5 | 10.5 | 10 | 3122.5 | 10.5 | 10 | 3142.5 | 10.5 | 10 |
| 3162.5 | 10.5 | 10 | 3182.5 | 10.5 | 10 | 3202.5 | 10.5 | 10 | 3222.5 | 10.5 | 10 | 3242.5 | 10.5 | 10 |
| 3262.5 | 10.5 | 10 | 3282.5 | 10.5 | 10 | 3302.5 | 10.5 | 10 | 3322.5 | 10.5 | 10 | 3342.5 | 10.5 | 10 |
| 3362.5 | 10.5 | 10 | 3382.5 | 10.5 | 10 | 3402.5 | 10.5 | 10 | 3422.5 | 10.5 | 10 | 3442.5 | 10.5 | 10 |
| 1407.0 | -10.3 | 14 | 1407.0 | 10.3 | 14 | 1427.0 | -10.3 | 14 | 1427.0 | 10.3 | 14 | 1447.0 | -10.3 | 14 |
| 1447.0 | 10.3 | 14 | 1467.0 | -10.3 | 14 | 1467.0 | 10.3 | 14 | 1487.0 | -10.3 | 14 | 1487.0 | 10.3 | 14 |
| 1507.0 | -10.3 | 14 | 1507.0 | 10.3 | 14 | 1527.0 | -10.3 | 14 | 1527.0 | 10.3 | 14 | 1547.0 | -10.3 | 14 |
| 1547.0 | 10.3 | 14 | 1567.0 | -10.3 | 14 | 1567.0 | 10.3 | 14 | 1587.0 | -10.3 | 14 | 1587.0 | 10.3 | 14 |
| 1607.0 | -10.3 | 14 | 1607.0 | 10.3 | 14 | 1627.0 | -10.3 | 14 | 1627.0 | 10.3 | 14 | 1647.0 | -10.3 | 14 |
| 1647.0 | 10.3 | 14 | 1667.0 | -10.3 | 14 | 1667.0 | 10.3 | 14 | 1687.0 | -10.3 | 14 | 1687.0 | 10.3 | 14 |
| 1707.0 | -10.3 | 14 | 1707.0 | 10.3 | 14 | 1727.0 | -10.3 | 14 | 1727.0 | 10.3 | 14 | 1747.0 | -10.3 | 14 |
| 1747.0 | 10.3 | 14 | 1767.0 | -10.3 | 14 | 1767.0 | 10.3 | 14 | 1787.0 | -10.3 | 14 | 1787.0 | 10.3 | 14 |
| 1807.0 | -10.3 | 14 | 1807.0 | 10.3 | 14 | 1827.0 | -10.3 | 14 | 1827.0 | 10.3 | 14 | 1847.0 | -10.3 | 14 |
| 1847.0 | 10.3 | 14 | 1867.0 | -10.3 | 14 | 1867.0 | 10.3 | 14 | 1887.0 | -10.3 | 14 | 1887.0 | 10.3 | 14 |
| 1907.0 | -10.3 | 14 | 1907.0 | 10.3 | 14 | 1927.0 | -10.3 | 14 | 1927.0 | 10.3 | 14 | 1947.0 | -10.3 | 14 |
| 1947.0 | 10.3 | 14 | 1967.0 | -10.3 | 14 | 1967.0 | 10.3 | 14 | 1987.0 | -10.3 | 14 | 1987.0 | 10.3 | 14 |
| 2007.0 | -10.3 | 14 | 2007.0 | 10.3 | 14 | 2027.0 | -10.3 | 14 | 2027.0 | 10.3 | 14 | 2047.0 | -10.3 | 14 |
| 2047.0 | 10.3 | 14 | 2067.0 | -10.3 | 14 | 2067.0 | 10.3 | 14 | 2087.0 | -10.3 | 14 | 2087.0 | 10.3 | 14 |
| 2107.0 | -10.3 | 14 | 2107.0 | 10.3 | 14 | 2127.0 | -10.3 | 14 | 2127.0 | 10.3 | 14 | 2147.0 | -10.3 | 14 |
| 2147.0 | 10.3 | 14 | 2167.0 | -10.3 | 14 | 2167.0 | 10.3 | 14 | 2187.0 | -10.3 | 14 | 2187.0 | 10.3 | 14 |
| 2207.0 | -10.3 | 14 | 2207.0 | 10.3 | 14 | 2227.0 | -10.3 | 14 | 2227.0 | 10.3 | 14 | 2247.0 | -10.3 | 14 |
| 2247.0 | 10.3 | 14 | 2267.0 | -10.3 | 14 | 2267.0 | 10.3 | 14 | 2287.0 | -10.3 | 14 | 2287.0 | 10.3 | 14 |
| 2307.0 | -10.3 | 14 | 2307.0 | 10.3 | 14 | 2327.0 | -10.3 | 14 | 2327.0 | 10.3 | 14 | 2347.0 | -10.3 | 14 |
| 2347.0 | 10.3 | 14 | 2367.0 | -10.3 | 14 | 2367.0 | 10.3 | 14 | 2387.0 | -10.3 | 14 | 2387.0 | 10.3 | 14 |
| 2407.0 | -10.3 | 14 | 2407.0 | 10.3 | 14 | 2427.0 | -10.3 | 14 | 2427.0 | 10.3 | 14 | 2447.0 | -10.3 | 14 |
| 2447.0 | 10.3 | 14 | 2467.0 | -10.3 | 14 | 2467.0 | 10.3 | 14 | 2487.0 | -10.3 | 14 | 2487.0 | 10.3 | 14 |
| 2507.0 | -10.3 | 14 | 2507.0 | 10.3 | 14 | 2527.0 | -10.3 | 14 | 2527.0 | 10.3 | 14 | 2547.0 | -10.3 | 14 |
| 2547.0 | 10.3 | 14 | 2567.0 | -10.3 | 14 | 2567.0 | 10.3 | 14 | 2587.0 | -10.3 | 14 | 2587.0 | 10.3 | 14 |
| 2607.0 | -10.3 | 14 | 2607.0 | 10.3 | 14 | 2627.0 | -10.3 | 14 | 2627.0 | 10.3 | 14 | 2647.0 | -10.3 | 14 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 2647.0 | 10.3 | 14 | 2667.0 | -10.3 | 14 | 2667.0 | 10.3 | 14 | 2687.0 | -10.3 | 14 | 2687.0 | 10.3 | 14 |
| 2707.0 | -10.3 | 14 | 2707.0 | 10.3 | 14 | 2727.0 | -10.3 | 14 | 2727.0 | 10.3 | 14 | 2747.0 | -10.3 | 14 |
| 2747.0 | 10.3 | 14 | 2767.0 | -10.3 | 14 | 2767.0 | 10.3 | 14 | 2787.0 | -10.3 | 14 | 2787.0 | 10.3 | 14 |
| 2807.0 | -10.3 | 14 | 2807.0 | 10.3 | 14 | 2827.0 | -10.3 | 14 | 2827.0 | 10.3 | 14 | 2847.0 | -10.3 | 14 |
| 2847.0 | 10.3 | 14 | 2867.0 | -10.3 | 14 | 2867.0 | 10.3 | 14 | 2887.0 | -10.3 | 14 | 2887.0 | 10.3 | 14 |
| 2907.0 | -10.3 | 14 | 2907.0 | 10.3 | 14 | 2927.0 | -10.3 | 14 | 2927.0 | 10.3 | 14 | 2947.0 | -10.3 | 14 |
| 2947.0 | 10.3 | 14 | 2967.0 | -10.3 | 14 | 2967.0 | 10.3 | 14 | 2987.0 | -10.3 | 14 | 2987.0 | 10.3 | 14 |
| 3007.0 | -10.3 | 14 | 3007.0 | 10.3 | 14 | 3027.0 | -10.3 | 14 | 3027.0 | 10.3 | 14 | 3047.0 | -10.3 | 14 |
| 3047.0 | 10.3 | 14 | 3067.0 | -10.3 | 14 | 3067.0 | 10.3 | 14 | 3087.0 | -10.3 | 14 | 3087.0 | 10.3 | 14 |
| 3107.0 | -10.3 | 14 | 3107.0 | 10.3 | 14 | 3127.0 | -10.3 | 14 | 3127.0 | 10.3 | 14 | 3147.0 | -10.3 | 14 |
| 3147.0 | 10.3 | 14 | 3167.0 | -10.3 | 14 | 3167.0 | 10.3 | 14 | 3187.0 | -10.3 | 14 | 3187.0 | 10.3 | 14 |
| 3207.0 | -10.3 | 14 | 3207.0 | 10.3 | 14 | 3227.0 | -10.3 | 14 | 3227.0 | 10.3 | 14 | 3247.0 | -10.3 | 14 |
| 3247.0 | 10.3 | 14 | 3267.0 | -10.3 | 14 | 3267.0 | 10.3 | 14 | 3287.0 | -10.3 | 14 | 3287.0 | 10.3 | 14 |
| 3307.0 | -10.3 | 14 | 3307.0 | 10.3 | 14 | 3327.0 | -10.3 | 14 | 3327.0 | 10.3 | 14 | 3347.0 | -10.3 | 14 |
| 3347.0 | 10.3 | 14 | 3367.0 | -10.3 | 14 | 3367.0 | 10.3 | 14 | 3387.0 | -10.3 | 14 | 3387.0 | 10.3 | 14 |
| 3407.0 | -10.3 | 14 | 3407.0 | 10.3 | 14 | 1362.5 | -10.3 | 14 | 1362.5 | 10.3 | 14 | 1382.5 | -10.3 | 14 |
| 1382.5 | 10.3 | 14 | 1402.5 | -10.3 | 14 | 1402.5 | 10.3 | 14 | 1422.5 | -10.3 | 14 | 1422.5 | 10.3 | 14 |
| 1442.5 | -10.3 | 14 | 1442.5 | 10.3 | 14 | 1462.5 | -10.3 | 14 | 1462.5 | 10.3 | 14 | 1482.5 | -10.3 | 14 |
| 1482.5 | 10.3 | 14 | 1502.5 | -10.3 | 14 | 1502.5 | 10.3 | 14 | 1522.5 | -10.3 | 14 | 1522.5 | 10.3 | 14 |
| 1542.5 | -10.3 | 14 | 1542.5 | 10.3 | 14 | 1562.5 | -10.3 | 14 | 1562.5 | 10.3 | 14 | 1582.5 | -10.3 | 14 |
| 1582.5 | 10.3 | 14 | 1602.5 | -10.3 | 14 | 1602.5 | 10.3 | 14 | 1622.5 | -10.3 | 14 | 1622.5 | 10.3 | 14 |
| 1642.5 | -10.3 | 14 | 1642.5 | 10.3 | 14 | 1662.5 | -10.3 | 14 | 1662.5 | 10.3 | 14 | 1682.5 | -10.3 | 14 |
| 1682.5 | 10.3 | 14 | 1702.5 | -10.3 | 14 | 1702.5 | 10.3 | 14 | 1722.5 | -10.3 | 14 | 1722.5 | 10.3 | 14 |
| 1742.5 | -10.3 | 14 | 1742.5 | 10.3 | 14 | 1762.5 | -10.3 | 14 | 1762.5 | 10.3 | 14 | 1782.5 | -10.3 | 14 |
| 1782.5 | 10.3 | 14 | 1802.5 | -10.3 | 14 | 1802.5 | 10.3 | 14 | 1822.5 | -10.3 | 14 | 1822.5 | 10.3 | 14 |
| 1842.5 | -10.3 | 14 | 1842.5 | 10.3 | 14 | 1862.5 | -10.3 | 14 | 1862.5 | 10.3 | 14 | 1882.5 | -10.3 | 14 |
| 1882.5 | 10.3 | 14 | 1902.5 | -10.3 | 14 | 1902.5 | 10.3 | 14 | 1922.5 | -10.3 | 14 | 1922.5 | 10.3 | 14 |
| 1942.5 | -10.3 | 14 | 1942.5 | 10.3 | 14 | 1962.5 | -10.3 | 14 | 1962.5 | 10.3 | 14 | 1982.5 | -10.3 | 14 |
| 1982.5 | 10.3 | 14 | 2002.5 | -10.3 | 14 | 2002.5 | 10.3 | 14 | 2022.5 | -10.3 | 14 | 2022.5 | 10.3 | 14 |
| 2042.5 | -10.3 | 14 | 2042.5 | 10.3 | 14 | 2062.5 | -10.3 | 14 | 2062.5 | 10.3 | 14 | 2082.5 | -10.3 | 14 |
| 2082.5 | 10.3 | 14 | 2102.5 | -10.3 | 14 | 2102.5 | 10.3 | 14 | 2122.5 | -10.3 | 14 | 2122.5 | 10.3 | 14 |
| 2142.5 | -10.3 | 14 | 2142.5 | 10.3 | 14 | 2162.5 | -10.3 | 14 | 2162.5 | 10.3 | 14 | 2182.5 | -10.3 | 14 |
| 2182.5 | 10.3 | 14 | 2202.5 | -10.3 | 14 | 2202.5 | 10.3 | 14 | 2222.5 | -10.3 | 14 | 2222.5 | 10.3 | 14 |
| 2242.5 | -10.3 | 14 | 2242.5 | 10.3 | 14 | 2262.5 | -10.3 | 14 | 2262.5 | 10.3 | 14 | 2282.5 | -10.3 | 14 |
| 2282.5 | 10.3 | 14 | 2302.5 | -10.3 | 14 | 2302.5 | 10.3 | 14 | 2322.5 | -10.3 | 14 | 2322.5 | 10.3 | 14 |
| 2342.5 | -10.3 | 14 | 2342.5 | 10.3 | 14 | 2362.5 | -10.3 | 14 | 2362.5 | 10.3 | 14 | 2382.5 | -10.3 | 14 |
| 2382.5 | 10.3 | 14 | 2402.5 | -10.3 | 14 | 2402.5 | 10.3 | 14 | 2422.5 | -10.3 | 14 | 2422.5 | 10.3 | 14 |
| 2442.5 | -10.3 | 14 | 2442.5 | 10.3 | 14 | 2462.5 | -10.3 | 14 | 2462.5 | 10.3 | 14 | 2482.5 | -10.3 | 14 |
| 2482.5 | 10.3 | 14 | 2502.5 | -10.3 | 14 | 2502.5 | 10.3 | 14 | 2522.5 | -10.3 | 14 | 2522.5 | 10.3 | 14 |
| 2542.5 | -10.3 | 14 | 2542.5 | 10.3 | 14 | 2562.5 | -10.3 | 14 | 2562.5 | 10.3 | 14 | 2582.5 | -10.3 | 14 |
| 2582.5 | 10.3 | 14 | 2602.5 | -10.3 | 14 | 2602.5 | 10.3 | 14 | 2622.5 | -10.3 | 14 | 2622.5 | 10.3 | 14 |
| 2642.5 | -10.3 | 14 | 2642.5 | 10.3 | 14 | 2662.5 | -10.3 | 14 | 2662.5 | 10.3 | 14 | 2682.5 | -10.3 | 14 |
| 2682.5 | 10.3 | 14 | 2702.5 | -10.3 | 14 | 2702.5 | 10.3 | 14 | 2722.5 | -10.3 | 14 | 2722.5 | 10.3 | 14 |
| 2742.5 | -10.3 | 14 | 2742.5 | 10.3 | 14 | 2762.5 | -10.3 | 14 | 2762.5 | 10.3 | 14 | 2782.5 | -10.3 | 14 |
| 2782.5 | 10.3 | 14 | 2802.5 | -10.3 | 14 | 2802.5 | 10.3 | 14 | 2822.5 | -10.3 | 14 | 2822.5 | 10.3 | 14 |
| 2842.5 | -10.3 | 14 | 2842.5 | 10.3 | 14 | 2862.5 | -10.3 | 14 | 2862.5 | 10.3 | 14 | 2882.5 | -10.3 | 14 |
| 2882.5 | 10.3 | 14 | 2902.5 | -10.3 | 14 | 2902.5 | 10.3 | 14 | 2922.5 | -10.3 | 14 | 2922.5 | 10.3 | 14 |
| 2942.5 | -10.3 | 14 | 2942.5 | 10.3 | 14 | 2962.5 | -10.3 | 14 | 2962.5 | 10.3 | 14 | 2982.5 | -10.3 | 14 |
| 2982.5 | 10.3 | 14 | 3002.5 | -10.3 | 14 | 3002.5 | 10.3 | 14 | 3022.5 | -10.3 | 14 | 3022.5 | 10.3 | 14 |
| 3042.5 | -10.3 | 14 | 3042.5 | 10.3 | 14 | 3062.5 | -10.3 | 14 | 3062.5 | 10.3 | 14 | 3082.5 | -10.3 | 14 |
| 3082.5 | 10.3 | 14 | 3102.5 | -10.3 | 14 | 3102.5 | 10.3 | 14 | 3122.5 | -10.3 | 14 | 3122.5 | 10.3 | 14 |
| 3142.5 | -10.3 | 14 | 3142.5 | 10.3 | 14 | 3162.5 | -10.3 | 14 | 3162.5 | 10.3 | 14 | 3182.5 | -10.3 | 14 |
| 3182.5 | 10.3 | 14 | 3202.5 | -10.3 | 14 | 3202.5 | 10.3 | 14 | 3222.5 | -10.3 | 14 | 3222.5 | 10.3 | 14 |
| 3242.5 | -10.3 | 14 | 3242.5 | 10.3 | 14 | 3262.5 | -10.3 | 14 | 3262.5 | 10.3 | 14 | 3282.5 | -10.3 | 14 |
| 3282.5 | 10.3 | 14 | 3302.5 | -10.3 | 14 | 3302.5 | 10.3 | 14 | 3322.5 | -10.3 | 14 | 3322.5 | 10.3 | 14 |
| 3342.5 | -10.3 | 14 | 3342.5 | 10.3 | 14 | 3362.5 | -10.3 | 14 | 3362.5 | 10.3 | 14 | 3382.5 | -10.3 | 14 |
| 3382.5 | 10.3 | 14 | 3402.5 | -10.3 | 14 | 3402.5 | 10.3 | 14 | 3422.5 | -10.3 | 14 | 3422.5 | 10.3 | 14 |
| 3442.5 | -10.3 | 14 | 3442.5 | 10.3 | 14 | | | | | | | | | |

Sezione a quota 135
Coordinate dei vertici

| X | Y |
|--------|-------|
| 1350.0 | 17.5 |
| 1350.0 | 80.0 |
| 1385.0 | 80.0 |
| 1385.0 | 17.5 |
| 2385.0 | 17.5 |
| 2385.0 | 80.0 |
| 2420.0 | 80.0 |
| 2420.0 | 17.5 |
| 3420.0 | 17.5 |
| 3420.0 | 80.0 |
| 3455.0 | 80.0 |
| 3455.0 | 17.5 |
| 3455.0 | -17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -80.0 |
| 1350.0 | -80.0 |
| 1350.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1362.5 | -10.5 | 10 | 1382.5 | -10.5 | 10 | 1402.5 | -10.5 | 10 | 1422.5 | -10.5 | 10 | 1442.5 | -10.5 | 10 |
| 1462.5 | -10.5 | 10 | 1482.5 | -10.5 | 10 | 1502.5 | -10.5 | 10 | 1522.5 | -10.5 | 10 | 1542.5 | -10.5 | 10 |
| 1562.5 | -10.5 | 10 | 1582.5 | -10.5 | 10 | 1602.5 | -10.5 | 10 | 1622.5 | -10.5 | 10 | 1642.5 | -10.5 | 10 |
| 1662.5 | -10.5 | 10 | 1682.5 | -10.5 | 10 | 1702.5 | -10.5 | 10 | 1722.5 | -10.5 | 10 | 1742.5 | -10.5 | 10 |
| 1762.5 | -10.5 | 10 | 1782.5 | -10.5 | 10 | 1802.5 | -10.5 | 10 | 1822.5 | -10.5 | 10 | 1842.5 | -10.5 | 10 |
| 1862.5 | -10.5 | 10 | 1882.5 | -10.5 | 10 | 1902.5 | -10.5 | 10 | 1922.5 | -10.5 | 10 | 1942.5 | -10.5 | 10 |
| 1962.5 | -10.5 | 10 | 1982.5 | -10.5 | 10 | 2002.5 | -10.5 | 10 | 2022.5 | -10.5 | 10 | 2042.5 | -10.5 | 10 |
| 2062.5 | -10.5 | 10 | 2082.5 | -10.5 | 10 | 2102.5 | -10.5 | 10 | 2122.5 | -10.5 | 10 | 2142.5 | -10.5 | 10 |
| 2162.5 | -10.5 | 10 | 2182.5 | -10.5 | 10 | 2202.5 | -10.5 | 10 | 2222.5 | -10.5 | 10 | 2242.5 | -10.5 | 10 |
| 2262.5 | -10.5 | 10 | 2282.5 | -10.5 | 10 | 2302.5 | -10.5 | 10 | 2322.5 | -10.5 | 10 | 2342.5 | -10.5 | 10 |
| 2362.5 | -10.5 | 10 | 2382.5 | -10.5 | 10 | 2402.5 | -10.5 | 10 | 2422.5 | -10.5 | 10 | 2442.5 | -10.5 | 10 |
| 2462.5 | -10.5 | 10 | 2482.5 | -10.5 | 10 | 2502.5 | -10.5 | 10 | 2522.5 | -10.5 | 10 | 2542.5 | -10.5 | 10 |
| 2562.5 | -10.5 | 10 | 2582.5 | -10.5 | 10 | 2602.5 | -10.5 | 10 | 2622.5 | -10.5 | 10 | 2642.5 | -10.5 | 10 |
| 2662.5 | -10.5 | 10 | 2682.5 | -10.5 | 10 | 2702.5 | -10.5 | 10 | 2722.5 | -10.5 | 10 | 2742.5 | -10.5 | 10 |
| 2762.5 | -10.5 | 10 | 2782.5 | -10.5 | 10 | 2802.5 | -10.5 | 10 | 2822.5 | -10.5 | 10 | 2842.5 | -10.5 | 10 |
| 2862.5 | -10.5 | 10 | 2882.5 | -10.5 | 10 | 2902.5 | -10.5 | 10 | 2922.5 | -10.5 | 10 | 2942.5 | -10.5 | 10 |
| 2962.5 | -10.5 | 10 | 2982.5 | -10.5 | 10 | 3002.5 | -10.5 | 10 | 3022.5 | -10.5 | 10 | 3042.5 | -10.5 | 10 |
| 3062.5 | -10.5 | 10 | 3082.5 | -10.5 | 10 | 3102.5 | -10.5 | 10 | 3122.5 | -10.5 | 10 | 3142.5 | -10.5 | 10 |
| 3162.5 | -10.5 | 10 | 3182.5 | -10.5 | 10 | 3202.5 | -10.5 | 10 | 3222.5 | -10.5 | 10 | 3242.5 | -10.5 | 10 |
| 3262.5 | -10.5 | 10 | 3282.5 | -10.5 | 10 | 3302.5 | -10.5 | 10 | 3322.5 | -10.5 | 10 | 3342.5 | -10.5 | 10 |
| 3362.5 | -10.5 | 10 | 3382.5 | -10.5 | 10 | 3402.5 | -10.5 | 10 | 3422.5 | -10.5 | 10 | 3442.5 | -10.5 | 10 |
| 1362.5 | 10.5 | 10 | 1382.5 | 10.5 | 10 | 1402.5 | 10.5 | 10 | 1422.5 | 10.5 | 10 | 1442.5 | 10.5 | 10 |
| 1462.5 | 10.5 | 10 | 1482.5 | 10.5 | 10 | 1502.5 | 10.5 | 10 | 1522.5 | 10.5 | 10 | 1542.5 | 10.5 | 10 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|------|--------|-------|----|--------|-------|----|
| 1562.5 | 10.5 | 10 | 1582.5 | 10.5 | 10 | 1602.5 | 10.5 | 10 | 1622.5 | 10.5 | 10 | 1642.5 | 10.5 | 10 |
| 1662.5 | 10.5 | 10 | 1682.5 | 10.5 | 10 | 1702.5 | 10.5 | 10 | 1722.5 | 10.5 | 10 | 1742.5 | 10.5 | 10 |
| 1762.5 | 10.5 | 10 | 1782.5 | 10.5 | 10 | 1802.5 | 10.5 | 10 | 1822.5 | 10.5 | 10 | 1842.5 | 10.5 | 10 |
| 1862.5 | 10.5 | 10 | 1882.5 | 10.5 | 10 | 1902.5 | 10.5 | 10 | 1922.5 | 10.5 | 10 | 1942.5 | 10.5 | 10 |
| 1962.5 | 10.5 | 10 | 1982.5 | 10.5 | 10 | 2002.5 | 10.5 | 10 | 2022.5 | 10.5 | 10 | 2042.5 | 10.5 | 10 |
| 2062.5 | 10.5 | 10 | 2082.5 | 10.5 | 10 | 2102.5 | 10.5 | 10 | 2122.5 | 10.5 | 10 | 2142.5 | 10.5 | 10 |
| 2162.5 | 10.5 | 10 | 2182.5 | 10.5 | 10 | 2202.5 | 10.5 | 10 | 2222.5 | 10.5 | 10 | 2242.5 | 10.5 | 10 |
| 2262.5 | 10.5 | 10 | 2282.5 | 10.5 | 10 | 2302.5 | 10.5 | 10 | 2322.5 | 10.5 | 10 | 2342.5 | 10.5 | 10 |
| 2362.5 | 10.5 | 10 | 2382.5 | 10.5 | 10 | 2402.5 | 10.5 | 10 | 2422.5 | 10.5 | 10 | 2442.5 | 10.5 | 10 |
| 2462.5 | 10.5 | 10 | 2482.5 | 10.5 | 10 | 2502.5 | 10.5 | 10 | 2522.5 | 10.5 | 10 | 2542.5 | 10.5 | 10 |
| 2562.5 | 10.5 | 10 | 2582.5 | 10.5 | 10 | 2602.5 | 10.5 | 10 | 2622.5 | 10.5 | 10 | 2642.5 | 10.5 | 10 |
| 2662.5 | 10.5 | 10 | 2682.5 | 10.5 | 10 | 2702.5 | 10.5 | 10 | 2722.5 | 10.5 | 10 | 2742.5 | 10.5 | 10 |
| 2762.5 | 10.5 | 10 | 2782.5 | 10.5 | 10 | 2802.5 | 10.5 | 10 | 2822.5 | 10.5 | 10 | 2842.5 | 10.5 | 10 |
| 2862.5 | 10.5 | 10 | 2882.5 | 10.5 | 10 | 2902.5 | 10.5 | 10 | 2922.5 | 10.5 | 10 | 2942.5 | 10.5 | 10 |
| 2962.5 | 10.5 | 10 | 2982.5 | 10.5 | 10 | 3002.5 | 10.5 | 10 | 3022.5 | 10.5 | 10 | 3042.5 | 10.5 | 10 |
| 3062.5 | 10.5 | 10 | 3082.5 | 10.5 | 10 | 3102.5 | 10.5 | 10 | 3122.5 | 10.5 | 10 | 3142.5 | 10.5 | 10 |
| 3162.5 | 10.5 | 10 | 3182.5 | 10.5 | 10 | 3202.5 | 10.5 | 10 | 3222.5 | 10.5 | 10 | 3242.5 | 10.5 | 10 |
| 3262.5 | 10.5 | 10 | 3282.5 | 10.5 | 10 | 3302.5 | 10.5 | 10 | 3322.5 | 10.5 | 10 | 3342.5 | 10.5 | 10 |
| 3362.5 | 10.5 | 10 | 3382.5 | 10.5 | 10 | 3402.5 | 10.5 | 10 | 3422.5 | 10.5 | 10 | 3442.5 | 10.5 | 10 |
| 1407.0 | -10.3 | 14 | 1407.0 | 10.3 | 14 | 1427.0 | -10.3 | 14 | 1427.0 | 10.3 | 14 | 1447.0 | -10.3 | 14 |
| 1447.0 | 10.3 | 14 | 1467.0 | -10.3 | 14 | 1467.0 | 10.3 | 14 | 1487.0 | -10.3 | 14 | 1487.0 | 10.3 | 14 |
| 1507.0 | -10.3 | 14 | 1507.0 | 10.3 | 14 | 1527.0 | -10.3 | 14 | 1527.0 | 10.3 | 14 | 1547.0 | -10.3 | 14 |
| 1547.0 | 10.3 | 14 | 1567.0 | -10.3 | 14 | 1567.0 | 10.3 | 14 | 1587.0 | -10.3 | 14 | 1587.0 | 10.3 | 14 |
| 1607.0 | -10.3 | 14 | 1607.0 | 10.3 | 14 | 1627.0 | -10.3 | 14 | 1627.0 | 10.3 | 14 | 1647.0 | -10.3 | 14 |
| 1647.0 | 10.3 | 14 | 1667.0 | -10.3 | 14 | 1667.0 | 10.3 | 14 | 1687.0 | -10.3 | 14 | 1687.0 | 10.3 | 14 |
| 1707.0 | -10.3 | 14 | 1707.0 | 10.3 | 14 | 1727.0 | -10.3 | 14 | 1727.0 | 10.3 | 14 | 1747.0 | -10.3 | 14 |
| 1747.0 | 10.3 | 14 | 1767.0 | -10.3 | 14 | 1767.0 | 10.3 | 14 | 1787.0 | -10.3 | 14 | 1787.0 | 10.3 | 14 |
| 1807.0 | -10.3 | 14 | 1807.0 | 10.3 | 14 | 1827.0 | -10.3 | 14 | 1827.0 | 10.3 | 14 | 1847.0 | -10.3 | 14 |
| 1847.0 | 10.3 | 14 | 1867.0 | -10.3 | 14 | 1867.0 | 10.3 | 14 | 1887.0 | -10.3 | 14 | 1887.0 | 10.3 | 14 |
| 1907.0 | -10.3 | 14 | 1907.0 | 10.3 | 14 | 1927.0 | -10.3 | 14 | 1927.0 | 10.3 | 14 | 1947.0 | -10.3 | 14 |
| 1947.0 | 10.3 | 14 | 1967.0 | -10.3 | 14 | 1967.0 | 10.3 | 14 | 1987.0 | -10.3 | 14 | 1987.0 | 10.3 | 14 |
| 2007.0 | -10.3 | 14 | 2007.0 | 10.3 | 14 | 2027.0 | -10.3 | 14 | 2027.0 | 10.3 | 14 | 2047.0 | -10.3 | 14 |
| 2047.0 | 10.3 | 14 | 2067.0 | -10.3 | 14 | 2067.0 | 10.3 | 14 | 2087.0 | -10.3 | 14 | 2087.0 | 10.3 | 14 |
| 2107.0 | -10.3 | 14 | 2107.0 | 10.3 | 14 | 2127.0 | -10.3 | 14 | 2127.0 | 10.3 | 14 | 2147.0 | -10.3 | 14 |
| 2147.0 | 10.3 | 14 | 2167.0 | -10.3 | 14 | 2167.0 | 10.3 | 14 | 2187.0 | -10.3 | 14 | 2187.0 | 10.3 | 14 |
| 2207.0 | -10.3 | 14 | 2207.0 | 10.3 | 14 | 2227.0 | -10.3 | 14 | 2227.0 | 10.3 | 14 | 2247.0 | -10.3 | 14 |
| 2247.0 | 10.3 | 14 | 2267.0 | -10.3 | 14 | 2267.0 | 10.3 | 14 | 2287.0 | -10.3 | 14 | 2287.0 | 10.3 | 14 |
| 2307.0 | -10.3 | 14 | 2307.0 | 10.3 | 14 | 2327.0 | -10.3 | 14 | 2327.0 | 10.3 | 14 | 2347.0 | -10.3 | 14 |
| 2347.0 | 10.3 | 14 | 2367.0 | -10.3 | 14 | 2367.0 | 10.3 | 14 | 2387.0 | -10.3 | 14 | 2387.0 | 10.3 | 14 |
| 2407.0 | -10.3 | 14 | 2407.0 | 10.3 | 14 | 2427.0 | -10.3 | 14 | 2427.0 | 10.3 | 14 | 2447.0 | -10.3 | 14 |
| 2447.0 | 10.3 | 14 | 2467.0 | -10.3 | 14 | 2467.0 | 10.3 | 14 | 2487.0 | -10.3 | 14 | 2487.0 | 10.3 | 14 |
| 2507.0 | -10.3 | 14 | 2507.0 | 10.3 | 14 | 2527.0 | -10.3 | 14 | 2527.0 | 10.3 | 14 | 2547.0 | -10.3 | 14 |
| 2547.0 | 10.3 | 14 | 2567.0 | -10.3 | 14 | 2567.0 | 10.3 | 14 | 2587.0 | -10.3 | 14 | 2587.0 | 10.3 | 14 |
| 2607.0 | -10.3 | 14 | 2607.0 | 10.3 | 14 | 2627.0 | -10.3 | 14 | 2627.0 | 10.3 | 14 | 2647.0 | -10.3 | 14 |
| 2647.0 | 10.3 | 14 | 2667.0 | -10.3 | 14 | 2667.0 | 10.3 | 14 | 2687.0 | -10.3 | 14 | 2687.0 | 10.3 | 14 |
| 2707.0 | -10.3 | 14 | 2707.0 | 10.3 | 14 | 2727.0 | -10.3 | 14 | 2727.0 | 10.3 | 14 | 2747.0 | -10.3 | 14 |
| 2747.0 | 10.3 | 14 | 2767.0 | -10.3 | 14 | 2767.0 | 10.3 | 14 | 2787.0 | -10.3 | 14 | 2787.0 | 10.3 | 14 |
| 2807.0 | -10.3 | 14 | 2807.0 | 10.3 | 14 | 2827.0 | -10.3 | 14 | 2827.0 | 10.3 | 14 | 2847.0 | -10.3 | 14 |
| 2847.0 | 10.3 | 14 | 2867.0 | -10.3 | 14 | 2867.0 | 10.3 | 14 | 2887.0 | -10.3 | 14 | 2887.0 | 10.3 | 14 |
| 2907.0 | -10.3 | 14 | 2907.0 | 10.3 | 14 | 2927.0 | -10.3 | 14 | 2927.0 | 10.3 | 14 | 2947.0 | -10.3 | 14 |
| 2947.0 | 10.3 | 14 | 2967.0 | -10.3 | 14 | 2967.0 | 10.3 | 14 | 2987.0 | -10.3 | 14 | 2987.0 | 10.3 | 14 |
| 3007.0 | -10.3 | 14 | 3007.0 | 10.3 | 14 | 3027.0 | -10.3 | 14 | 3027.0 | 10.3 | 14 | 3047.0 | -10.3 | 14 |
| 3047.0 | 10.3 | 14 | 3067.0 | -10.3 | 14 | 3067.0 | 10.3 | 14 | 3087.0 | -10.3 | 14 | 3087.0 | 10.3 | 14 |
| 3107.0 | -10.3 | 14 | 3107.0 | 10.3 | 14 | 3127.0 | -10.3 | 14 | 3127.0 | 10.3 | 14 | 3147.0 | -10.3 | 14 |
| 3147.0 | 10.3 | 14 | 3167.0 | -10.3 | 14 | 3167.0 | 10.3 | 14 | 3187.0 | -10.3 | 14 | 3187.0 | 10.3 | 14 |
| 3207.0 | -10.3 | 14 | 3207.0 | 10.3 | 14 | 3227.0 | -10.3 | 14 | 3227.0 | 10.3 | 14 | 3247.0 | -10.3 | 14 |
| 3247.0 | 10.3 | 14 | 3267.0 | -10.3 | 14 | 3267.0 | 10.3 | 14 | 3287.0 | -10.3 | 14 | 3287.0 | 10.3 | 14 |
| 3307.0 | -10.3 | 14 | 3307.0 | 10.3 | 14 | 3327.0 | -10.3 | 14 | 3327.0 | 10.3 | 14 | 3347.0 | -10.3 | 14 |
| 3347.0 | 10.3 | 14 | 3367.0 | -10.3 | 14 | 3367.0 | 10.3 | 14 | 3387.0 | -10.3 | 14 | 3387.0 | 10.3 | 14 |
| 3407.0 | -10.3 | 14 | 3407.0 | 10.3 | 14 | 1362.5 | -10.3 | 14 | 1362.5 | 10.3 | 14 | 1382.5 | -10.3 | 14 |
| 1382.5 | 10.3 | 14 | 1402.5 | -10.3 | 14 | 1402.5 | 10.3 | 14 | 1422.5 | -10.3 | 14 | 1422.5 | 10.3 | 14 |
| 1442.5 | -10.3 | 14 | 1442.5 | 10.3 | 14 | 1462.5 | -10.3 | 14 | 1462.5 | 10.3 | 14 | 1482.5 | -10.3 | 14 |
| 1482.5 | 10.3 | 14 | 1502.5 | -10.3 | 14 | 1502.5 | 10.3 | 14 | 1522.5 | -10.3 | 14 | 1522.5 | 10.3 | 14 |
| 1542.5 | -10.3 | 14 | 1542.5 | 10.3 | 14 | 1562.5 | -10.3 | 14 | 1562.5 | 10.3 | 14 | 1582.5 | -10.3 | 14 |
| 1582.5 | 10.3 | 14 | 1602.5 | -10.3 | 14 | 1602.5 | 10.3 | 14 | 1622.5 | -10.3 | 14 | 1622.5 | 10.3 | 14 |
| 1642.5 | -10.3 | 14 | 1642.5 | 10.3 | 14 | 1662.5 | -10.3 | 14 | 1662.5 | 10.3 | 14 | 1682.5 | -10.3 | 14 |
| 1682.5 | 10.3 | 14 | 1702.5 | -10.3 | 14 | 1702.5 | 10.3 | 14 | 1722.5 | -10.3 | 14 | 1722.5 | 10.3 | 14 |
| 1742.5 | -10.3 | 14 | 1742.5 | 10.3 | 14 | 1762.5 | -10.3 | 14 | 1762.5 | 10.3 | 14 | 1782.5 | -10.3 | 14 |
| 1782.5 | 10.3 | 14 | 1802.5 | -10.3 | 14 | 1802.5 | 10.3 | 14 | 1822.5 | -10.3 | 14 | 1822.5 | 10.3 | 14 |
| 1842.5 | -10.3 | 14 | 1842.5 | 10.3 | 14 | 1862.5 | -10.3 | 14 | 1862.5 | 10.3 | 14 | 1882.5 | -10.3 | 14 |
| 1882.5 | 10.3 | 14 | 1902.5 | -10.3 | 14 | 1902.5 | 10.3 | 14 | 1922.5 | -10.3 | 14 | 1922.5 | 10.3 | 14 |
| 1942.5 | -10.3 | 14 | 1942.5 | 10.3 | 14 | 1962.5 | -10.3 | 14 | 1962.5 | 10.3 | 14 | 1982.5 | -10.3 | 14 |
| 1982.5 | 10.3 | 14 | 2002.5 | -10.3 | 14 | 2002.5 | 10.3 | 14 | 2022.5 | -10.3 | 14 | 2022.5 | 10.3 | 14 |
| 2042.5 | -10.3 | 14 | 2042.5 | 10.3 | 14 | 2062.5 | -10.3 | 14 | 2062.5 | 10.3 | 14 | 2082.5 | -10.3 | 14 |
| 2082.5 | 10.3 | 14 | 2102.5 | -10.3 | 14 | 2102.5 | 10.3 | 14 | 2122.5 | -10.3 | 14 | 2122.5 | 10.3 | 14 |
| 2142.5 | -10.3 | 14 | 2142.5 | 10.3 | 14 | 2162.5 | -10.3 | 14 | 2162.5 | 10.3 | 14 | 2182.5 | -10.3 | 14 |
| 2182.5 | 10.3 | 14 | 2202.5 | -10.3 | 14 | 2202.5 | 10.3 | 14 | 2222.5 | -10.3 | 14 | 2222.5 | 10.3 | 14 |
| 2242.5 | -10.3 | 14 | 2242.5 | 10.3 | 14 | 2262.5 | -10.3 | 14 | 2262.5 | 10.3 | 14 | 2282.5 | -10.3 | 14 |
| 2282.5 | 10.3 | 14 | 2302.5 | -10.3 | 14 | 2302.5 | 10.3 | 14 | 2322.5 | -10.3 | 14 | 2322.5 | 10.3 | 14 |
| 2342.5 | -10.3 | 14 | 2342.5 | 10.3 | 14 | 2362.5 | -10.3 | 14 | 2362.5 | 10.3 | 14 | 2382.5 | -10.3 | 14 |
| 2382.5 | 10.3 | 14 | 2402.5 | -10.3 | 14 | 2402.5 | 10.3 | 14 | 2422.5 | -10.3 | 14 | 2422.5 | 10.3 | 14 |
| 2442.5 | -10.3 | 14 | 2442.5 | 10.3 | 14 | 2462.5 | -10.3 | 14 | 2462.5 | 10.3 | 14 | 2482.5 | -10.3 | 14 |
| 2482.5 | 10.3 | 14 | 2502.5 | -10.3 | 14 | 2502.5 | 10.3 | 14 | 2522.5 | -10.3 | 14 | 2522.5 | 10.3 | 14 |
| 2542.5 | -10.3 | 14 | 2542.5 | 10.3 | 14 | 2562.5 | -10.3 | 14 | 2562.5 | 10.3 | 14 | 2582.5 | -10.3 | 14 |
| 2582.5 | 10.3 | 14 | 2602.5 | -10.3 | 14 | 2602.5 | 10.3 | 14 | 2622.5 | -10.3 | 14 | 2622.5 | 10.3 | 14 |
| 2642.5 | -10.3 | 14 | 2642.5 | 10.3 | 14 | 2662.5 | -10.3 | 14 | 2662.5 | 10.3 | 14 | 2682.5 | -10.3 | 14 |
| 2682.5 | 10.3 | 14 | 2702.5 | -10.3 | 14 | 2702.5 | 10.3 | 14 | 2722.5 | -10.3 | 14 | 2722.5 | 10.3 | 14 |
| 2742.5 | -10.3 | 14 | 2742.5 | 10.3 | 14 | 2762.5 | -10.3 | 14</ | | | | | | |

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| X | Y |
|--------|-------|
| 1350.0 | 17.5 |
| 1350.0 | 72.5 |
| 1385.0 | 72.5 |
| 1385.0 | 17.5 |
| 2385.0 | 17.5 |
| 2385.0 | 72.5 |
| 2420.0 | 72.5 |
| 2420.0 | 17.5 |
| 3420.0 | 17.5 |
| 3420.0 | 72.5 |
| 3455.0 | 72.5 |
| 3455.0 | 17.5 |
| 3455.0 | -17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -72.5 |
| 1350.0 | -72.5 |
| 1350.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1362.5 | -10.5 | 10 | 1382.5 | -10.5 | 10 | 1402.5 | -10.5 | 10 | 1422.5 | -10.5 | 10 | 1442.5 | -10.5 | 10 |
| 1462.5 | -10.5 | 10 | 1482.5 | -10.5 | 10 | 1502.5 | -10.5 | 10 | 1522.5 | -10.5 | 10 | 1542.5 | -10.5 | 10 |
| 1562.5 | -10.5 | 10 | 1582.5 | -10.5 | 10 | 1602.5 | -10.5 | 10 | 1622.5 | -10.5 | 10 | 1642.5 | -10.5 | 10 |
| 1662.5 | -10.5 | 10 | 1682.5 | -10.5 | 10 | 1702.5 | -10.5 | 10 | 1722.5 | -10.5 | 10 | 1742.5 | -10.5 | 10 |
| 1762.5 | -10.5 | 10 | 1782.5 | -10.5 | 10 | 1802.5 | -10.5 | 10 | 1822.5 | -10.5 | 10 | 1842.5 | -10.5 | 10 |
| 1862.5 | -10.5 | 10 | 1882.5 | -10.5 | 10 | 1902.5 | -10.5 | 10 | 1922.5 | -10.5 | 10 | 1942.5 | -10.5 | 10 |
| 1962.5 | -10.5 | 10 | 1982.5 | -10.5 | 10 | 2002.5 | -10.5 | 10 | 2022.5 | -10.5 | 10 | 2042.5 | -10.5 | 10 |
| 2062.5 | -10.5 | 10 | 2082.5 | -10.5 | 10 | 2102.5 | -10.5 | 10 | 2122.5 | -10.5 | 10 | 2142.5 | -10.5 | 10 |
| 2162.5 | -10.5 | 10 | 2182.5 | -10.5 | 10 | 2202.5 | -10.5 | 10 | 2222.5 | -10.5 | 10 | 2242.5 | -10.5 | 10 |
| 2262.5 | -10.5 | 10 | 2282.5 | -10.5 | 10 | 2302.5 | -10.5 | 10 | 2322.5 | -10.5 | 10 | 2342.5 | -10.5 | 10 |
| 2362.5 | -10.5 | 10 | 2382.5 | -10.5 | 10 | 2402.5 | -10.5 | 10 | 2422.5 | -10.5 | 10 | 2442.5 | -10.5 | 10 |
| 2462.5 | -10.5 | 10 | 2482.5 | -10.5 | 10 | 2502.5 | -10.5 | 10 | 2522.5 | -10.5 | 10 | 2542.5 | -10.5 | 10 |
| 2562.5 | -10.5 | 10 | 2582.5 | -10.5 | 10 | 2602.5 | -10.5 | 10 | 2622.5 | -10.5 | 10 | 2642.5 | -10.5 | 10 |
| 2662.5 | -10.5 | 10 | 2682.5 | -10.5 | 10 | 2702.5 | -10.5 | 10 | 2722.5 | -10.5 | 10 | 2742.5 | -10.5 | 10 |
| 2762.5 | -10.5 | 10 | 2782.5 | -10.5 | 10 | 2802.5 | -10.5 | 10 | 2822.5 | -10.5 | 10 | 2842.5 | -10.5 | 10 |
| 2862.5 | -10.5 | 10 | 2882.5 | -10.5 | 10 | 2902.5 | -10.5 | 10 | 2922.5 | -10.5 | 10 | 2942.5 | -10.5 | 10 |
| 2962.5 | -10.5 | 10 | 2982.5 | -10.5 | 10 | 3002.5 | -10.5 | 10 | 3022.5 | -10.5 | 10 | 3042.5 | -10.5 | 10 |
| 3062.5 | -10.5 | 10 | 3082.5 | -10.5 | 10 | 3102.5 | -10.5 | 10 | 3122.5 | -10.5 | 10 | 3142.5 | -10.5 | 10 |
| 3162.5 | -10.5 | 10 | 3182.5 | -10.5 | 10 | 3202.5 | -10.5 | 10 | 3222.5 | -10.5 | 10 | 3242.5 | -10.5 | 10 |
| 3262.5 | -10.5 | 10 | 3282.5 | -10.5 | 10 | 3302.5 | -10.5 | 10 | 3322.5 | -10.5 | 10 | 3342.5 | -10.5 | 10 |
| 3362.5 | -10.5 | 10 | 3382.5 | -10.5 | 10 | 3402.5 | -10.5 | 10 | 3422.5 | -10.5 | 10 | 3442.5 | -10.5 | 10 |
| 1362.5 | 10.5 | 10 | 1382.5 | 10.5 | 10 | 1402.5 | 10.5 | 10 | 1422.5 | 10.5 | 10 | 1442.5 | 10.5 | 10 |
| 1462.5 | 10.5 | 10 | 1482.5 | 10.5 | 10 | 1502.5 | 10.5 | 10 | 1522.5 | 10.5 | 10 | 1542.5 | 10.5 | 10 |
| 1562.5 | 10.5 | 10 | 1582.5 | 10.5 | 10 | 1602.5 | 10.5 | 10 | 1622.5 | 10.5 | 10 | 1642.5 | 10.5 | 10 |
| 1662.5 | 10.5 | 10 | 1682.5 | 10.5 | 10 | 1702.5 | 10.5 | 10 | 1722.5 | 10.5 | 10 | 1742.5 | 10.5 | 10 |
| 1762.5 | 10.5 | 10 | 1782.5 | 10.5 | 10 | 1802.5 | 10.5 | 10 | 1822.5 | 10.5 | 10 | 1842.5 | 10.5 | 10 |
| 1862.5 | 10.5 | 10 | 1882.5 | 10.5 | 10 | 1902.5 | 10.5 | 10 | 1922.5 | 10.5 | 10 | 1942.5 | 10.5 | 10 |
| 1962.5 | 10.5 | 10 | 1982.5 | 10.5 | 10 | 2002.5 | 10.5 | 10 | 2022.5 | 10.5 | 10 | 2042.5 | 10.5 | 10 |
| 2062.5 | 10.5 | 10 | 2082.5 | 10.5 | 10 | 2102.5 | 10.5 | 10 | 2122.5 | 10.5 | 10 | 2142.5 | 10.5 | 10 |
| 2162.5 | 10.5 | 10 | 2182.5 | 10.5 | 10 | 2202.5 | 10.5 | 10 | 2222.5 | 10.5 | 10 | 2242.5 | 10.5 | 10 |
| 2262.5 | 10.5 | 10 | 2282.5 | 10.5 | 10 | 2302.5 | 10.5 | 10 | 2322.5 | 10.5 | 10 | 2342.5 | 10.5 | 10 |
| 2362.5 | 10.5 | 10 | 2382.5 | 10.5 | 10 | 2402.5 | 10.5 | 10 | 2422.5 | 10.5 | 10 | 2442.5 | 10.5 | 10 |
| 2462.5 | 10.5 | 10 | 2482.5 | 10.5 | 10 | 2502.5 | 10.5 | 10 | 2522.5 | 10.5 | 10 | 2542.5 | 10.5 | 10 |
| 2562.5 | 10.5 | 10 | 2582.5 | 10.5 | 10 | 2602.5 | 10.5 | 10 | 2622.5 | 10.5 | 10 | 2642.5 | 10.5 | 10 |
| 2662.5 | 10.5 | 10 | 2682.5 | 10.5 | 10 | 2702.5 | 10.5 | 10 | 2722.5 | 10.5 | 10 | 2742.5 | 10.5 | 10 |
| 2762.5 | 10.5 | 10 | 2782.5 | 10.5 | 10 | 2802.5 | 10.5 | 10 | 2822.5 | 10.5 | 10 | 2842.5 | 10.5 | 10 |
| 2862.5 | 10.5 | 10 | 2882.5 | 10.5 | 10 | 2902.5 | 10.5 | 10 | 2922.5 | 10.5 | 10 | 2942.5 | 10.5 | 10 |
| 2962.5 | 10.5 | 10 | 2982.5 | 10.5 | 10 | 3002.5 | 10.5 | 10 | 3022.5 | 10.5 | 10 | 3042.5 | 10.5 | 10 |
| 3062.5 | 10.5 | 10 | 3082.5 | 10.5 | 10 | 3102.5 | 10.5 | 10 | 3122.5 | 10.5 | 10 | 3142.5 | 10.5 | 10 |
| 3162.5 | 10.5 | 10 | 3182.5 | 10.5 | 10 | 3202.5 | 10.5 | 10 | 3222.5 | 10.5 | 10 | 3242.5 | 10.5 | 10 |
| 3262.5 | 10.5 | 10 | 3282.5 | 10.5 | 10 | 3302.5 | 10.5 | 10 | 3322.5 | 10.5 | 10 | 3342.5 | 10.5 | 10 |
| 3362.5 | 10.5 | 10 | 3382.5 | 10.5 | 10 | 3402.5 | 10.5 | 10 | 3422.5 | 10.5 | 10 | 3442.5 | 10.5 | 10 |
| 1407.0 | -10.3 | 14 | 1407.0 | 10.3 | 14 | 1427.0 | -10.3 | 14 | 1427.0 | 10.3 | 14 | 1447.0 | -10.3 | 14 |
| 1447.0 | 10.3 | 14 | 1467.0 | -10.3 | 14 | 1467.0 | 10.3 | 14 | 1487.0 | -10.3 | 14 | 1487.0 | 10.3 | 14 |
| 1507.0 | -10.3 | 14 | 1507.0 | 10.3 | 14 | 1527.0 | -10.3 | 14 | 1527.0 | 10.3 | 14 | 1547.0 | -10.3 | 14 |
| 1547.0 | 10.3 | 14 | 1567.0 | -10.3 | 14 | 1567.0 | 10.3 | 14 | 1587.0 | -10.3 | 14 | 1587.0 | 10.3 | 14 |
| 1607.0 | -10.3 | 14 | 1607.0 | 10.3 | 14 | 1627.0 | -10.3 | 14 | 1627.0 | 10.3 | 14 | 1647.0 | -10.3 | 14 |
| 1647.0 | 10.3 | 14 | 1667.0 | -10.3 | 14 | 1667.0 | 10.3 | 14 | 1687.0 | -10.3 | 14 | 1687.0 | 10.3 | 14 |
| 1707.0 | -10.3 | 14 | 1707.0 | 10.3 | 14 | 1727.0 | -10.3 | 14 | 1727.0 | 10.3 | 14 | 1747.0 | -10.3 | 14 |
| 1747.0 | 10.3 | 14 | 1767.0 | -10.3 | 14 | 1767.0 | 10.3 | 14 | 1787.0 | -10.3 | 14 | 1787.0 | 10.3 | 14 |
| 1807.0 | -10.3 | 14 | 1807.0 | 10.3 | 14 | 1827.0 | -10.3 | 14 | 1827.0 | 10.3 | 14 | 1847.0 | -10.3 | 14 |
| 1847.0 | 10.3 | 14 | 1867.0 | -10.3 | 14 | 1867.0 | 10.3 | 14 | 1887.0 | -10.3 | 14 | 1887.0 | 10.3 | 14 |
| 1907.0 | -10.3 | 14 | 1907.0 | 10.3 | 14 | 1927.0 | -10.3 | 14 | 1927.0 | 10.3 | 14 | 1947.0 | -10.3 | 14 |
| 1947.0 | 10.3 | 14 | 1967.0 | -10.3 | 14 | 1967.0 | 10.3 | 14 | 1987.0 | -10.3 | 14 | 1987.0 | 10.3 | 14 |
| 2007.0 | -10.3 | 14 | 2007.0 | 10.3 | 14 | 2027.0 | -10.3 | 14 | 2027.0 | 10.3 | 14 | 2047.0 | -10.3 | 14 |
| 2047.0 | 10.3 | 14 | 2067.0 | -10.3 | 14 | 2067.0 | 10.3 | 14 | 2087.0 | -10.3 | 14 | 2087.0 | 10.3 | 14 |
| 2107.0 | -10.3 | 14 | 2107.0 | 10.3 | 14 | 2127.0 | -10.3 | 14 | 2127.0 | 10.3 | 14 | 2147.0 | -10.3 | 14 |
| 2147.0 | 10.3 | 14 | 2167.0 | -10.3 | 14 | 2167.0 | 10.3 | 14 | 2187.0 | -10.3 | 14 | 2187.0 | 10.3 | 14 |
| 2207.0 | -10.3 | 14 | 2207.0 | 10.3 | 14 | 2227.0 | -10.3 | 14 | 2227.0 | 10.3 | 14 | 2247.0 | -10.3 | 14 |
| 2247.0 | 10.3 | 14 | 2267.0 | -10.3 | 14 | 2267.0 | 10.3 | 14 | 2287.0 | -10.3 | 14 | 2287.0 | 10.3 | 14 |
| 2307.0 | -10.3 | 14 | 2307.0 | 10.3 | 14 | 2327.0 | -10.3 | 14 | 2327.0 | 10.3 | 14 | 2347.0 | -10.3 | 14 |
| 2347.0 | 10.3 | 14 | 2367.0 | -10.3 | 14 | 2367.0 | 10.3 | 14 | 2387.0 | -10.3 | 14 | 2387.0 | 10.3 | 14 |
| 2407.0 | -10.3 | 14 | 2407.0 | 10.3 | 14 | 2427.0 | -10.3 | 14 | 2427.0 | 10.3 | 14 | 2447.0 | -10.3 | 14 |
| 2447.0 | 10.3 | 14 | 2467.0 | -10.3 | 14 | 2467.0 | 10.3 | 14 | 2487.0 | -10.3 | 14 | 2487.0 | 10.3 | 14 |
| 2507.0 | -10.3 | 14 | 2507.0 | 10.3 | 14 | 2527.0 | -10.3 | 14 | 2527.0 | 10.3 | 14 | 2547.0 | -10.3 | 14 |
| 2547.0 | 10.3 | 14 | 2567.0 | -10.3 | 14 | 2567.0 | 10.3 | 14 | 2587.0 | -10.3 | 14 | 2587.0 | 10.3 | 14 |
| 2607.0 | -10.3 | 14 | 2607.0 | 10.3 | 14 | 2627.0 | -10.3 | 14 | 2627.0 | 10.3 | 14 | 2647.0 | -10.3 | 14 |
| 2647.0 | 10.3 | 14 | 2667.0 | -10.3 | 14 | 2667.0 | 10.3 | 14 | 2687.0 | -10.3 | 14 | 2687.0 | 10.3 | 14 |
| 2707.0 | -10.3 | 14 | 2707.0 | 10.3 | 14 | 2727.0 | -10.3 | 14 | 2727.0 | 10.3 | 14 | 2747.0 | -10.3 | 14 |
| 2747.0 | 10.3 | 14 | 2767.0 | -10.3 | 14 | 2767.0 | 10.3 | 14 | 2787.0 | -10.3 | 14 | 2787.0 | 10.3 | 14 |
| 2807.0 | -10.3 | 14 | 2807.0 | 10.3 | 14 | 2827.0 | -10.3 | 14 | 2827.0 | 10.3 | 14 | 2847.0 | -10.3 | 14 |
| 2847.0 | 10.3 | 14 | 2867.0 | -10.3 | 14 | 2867.0 | 10.3 | 14 | 2887.0 | -10.3 | 14 | 2887.0 | 10.3 | 14 |
| 2907.0 | -10.3 | 14 | 2907.0 | 10.3 | 14 | 2927.0 | -10.3 | 14 | 2927.0 | 10.3 | 14 | 2947.0 | -10.3 | 14 |
| 2947.0 | 10.3 | 14 | 2967.0 | -10.3 | 14 | 2967.0 | 10.3 | 14 | 2987.0 | -10.3 | 14 | 2987.0 | 10.3 | 14 |
| 3007.0 | -10.3 | 14 | 3007.0 | 10.3 | 14 | 3027.0 | -10.3 | 14 | 3027.0 | 10.3 | 14 | 3047.0 | -10.3 | 14 |
| 3047.0 | 10.3 | 14 | 3067.0 | -10.3 | 14 | 3067.0 | 10.3 | 14 | 3087.0 | -10.3 | 14 | 3087.0 | 10.3 | 14 |
| 3107.0 | -10.3 | 14 | 3107.0 | 10.3 | 14 | 3127.0 | -10.3 | 14 | 3127.0 | 10.3 | 14 | 3147.0 | -10.3 | 14 |
| 3147.0 | 10.3 | 14 | 3167.0 | -10.3 | 14 | 3167.0 | 10.3 | 14 | 3187.0 | -10.3 | 14 | 3187.0 | 10.3 | 14 |
| 3207.0 | -10.3 | 14 | 3207.0 | 10.3 | 14 | 3227.0 | -10.3 | 14 | 3227.0 | 10.3 | 14 | 3247.0 | -10.3 | 14 |
| 3247.0 | 10.3 | 14 | 3267.0 | -10.3 | 14 | 3267.0 | 10.3 | 14 | 3287.0 | -10.3 | 14 | 3287.0 | 10.3 | 14 |
| 3307.0 | -10.3 | 14 | 3307.0 | 10.3 | 14 | 3327.0 | -10.3 | 14 | 3327.0 | 10.3 | 14 | 3347.0 | -10.3 | 14 |
| 3347.0 | 10.3 | 14 | 3367.0 | -10.3 | 14 | 3367.0 | 10.3 | 14 | 3387.0 | -10.3 | 14 | 3387.0 | 10.3 | 14 |
| 3407.0 | -10.3 | 14 | 3407.0 | 10.3 | 14 | | | | | | | | | |

**Ampliamento e potenziamento dell'impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Sezione a quota 300
Coordinate dei vertici

| X | Y |
|--------|-------|
| 1350.0 | 17.5 |
| 1350.0 | 38.8 |
| 1385.0 | 38.8 |
| 1385.0 | 17.5 |
| 2385.0 | 17.5 |
| 2385.0 | 38.8 |
| 2420.0 | 38.8 |
| 2420.0 | 17.5 |
| 3420.0 | 17.5 |
| 3420.0 | 38.8 |
| 3455.0 | 38.8 |
| 3455.0 | 17.5 |
| 3455.0 | -17.5 |
| 1385.0 | -17.5 |
| 1385.0 | -38.8 |
| 1350.0 | -38.8 |
| 1350.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1362.5 | -10.5 | 10 | 1382.5 | -10.5 | 10 | 1402.5 | -10.5 | 10 | 1422.5 | -10.5 | 10 | 1442.5 | -10.5 | 10 |
| 1462.5 | -10.5 | 10 | 1482.5 | -10.5 | 10 | 1502.5 | -10.5 | 10 | 1522.5 | -10.5 | 10 | 1542.5 | -10.5 | 10 |
| 1562.5 | -10.5 | 10 | 1582.5 | -10.5 | 10 | 1602.5 | -10.5 | 10 | 1622.5 | -10.5 | 10 | 1642.5 | -10.5 | 10 |
| 1662.5 | -10.5 | 10 | 1682.5 | -10.5 | 10 | 1702.5 | -10.5 | 10 | 1722.5 | -10.5 | 10 | 1742.5 | -10.5 | 10 |
| 1762.5 | -10.5 | 10 | 1782.5 | -10.5 | 10 | 1802.5 | -10.5 | 10 | 1822.5 | -10.5 | 10 | 1842.5 | -10.5 | 10 |
| 1862.5 | -10.5 | 10 | 1882.5 | -10.5 | 10 | 1902.5 | -10.5 | 10 | 1922.5 | -10.5 | 10 | 1942.5 | -10.5 | 10 |
| 1962.5 | -10.5 | 10 | 1982.5 | -10.5 | 10 | 2002.5 | -10.5 | 10 | 2022.5 | -10.5 | 10 | 2042.5 | -10.5 | 10 |
| 2062.5 | -10.5 | 10 | 2082.5 | -10.5 | 10 | 2102.5 | -10.5 | 10 | 2122.5 | -10.5 | 10 | 2142.5 | -10.5 | 10 |
| 2162.5 | -10.5 | 10 | 2182.5 | -10.5 | 10 | 2202.5 | -10.5 | 10 | 2222.5 | -10.5 | 10 | 2242.5 | -10.5 | 10 |
| 2262.5 | -10.5 | 10 | 2282.5 | -10.5 | 10 | 2302.5 | -10.5 | 10 | 2322.5 | -10.5 | 10 | 2342.5 | -10.5 | 10 |
| 2362.5 | -10.5 | 10 | 2382.5 | -10.5 | 10 | 2402.5 | -10.5 | 10 | 2422.5 | -10.5 | 10 | 2442.5 | -10.5 | 10 |
| 2462.5 | -10.5 | 10 | 2482.5 | -10.5 | 10 | 2502.5 | -10.5 | 10 | 2522.5 | -10.5 | 10 | 2542.5 | -10.5 | 10 |
| 2562.5 | -10.5 | 10 | 2582.5 | -10.5 | 10 | 2602.5 | -10.5 | 10 | 2622.5 | -10.5 | 10 | 2642.5 | -10.5 | 10 |
| 2662.5 | -10.5 | 10 | 2682.5 | -10.5 | 10 | 2702.5 | -10.5 | 10 | 2722.5 | -10.5 | 10 | 2742.5 | -10.5 | 10 |
| 2762.5 | -10.5 | 10 | 2782.5 | -10.5 | 10 | 2802.5 | -10.5 | 10 | 2822.5 | -10.5 | 10 | 2842.5 | -10.5 | 10 |
| 2862.5 | -10.5 | 10 | 2882.5 | -10.5 | 10 | 2902.5 | -10.5 | 10 | 2922.5 | -10.5 | 10 | 2942.5 | -10.5 | 10 |
| 2962.5 | -10.5 | 10 | 2982.5 | -10.5 | 10 | 3002.5 | -10.5 | 10 | 3022.5 | -10.5 | 10 | 3042.5 | -10.5 | 10 |
| 3062.5 | -10.5 | 10 | 3082.5 | -10.5 | 10 | 3102.5 | -10.5 | 10 | 3122.5 | -10.5 | 10 | 3142.5 | -10.5 | 10 |
| 3162.5 | -10.5 | 10 | 3182.5 | -10.5 | 10 | 3202.5 | -10.5 | 10 | 3222.5 | -10.5 | 10 | 3242.5 | -10.5 | 10 |
| 3262.5 | -10.5 | 10 | 3282.5 | -10.5 | 10 | 3302.5 | -10.5 | 10 | 3322.5 | -10.5 | 10 | 3342.5 | -10.5 | 10 |
| 3362.5 | -10.5 | 10 | 3382.5 | -10.5 | 10 | 3402.5 | -10.5 | 10 | 3422.5 | -10.5 | 10 | 3442.5 | -10.5 | 10 |
| 1362.5 | 10.5 | 10 | 1382.5 | 10.5 | 10 | 1402.5 | 10.5 | 10 | 1422.5 | 10.5 | 10 | 1442.5 | 10.5 | 10 |
| 1462.5 | 10.5 | 10 | 1482.5 | 10.5 | 10 | 1502.5 | 10.5 | 10 | 1522.5 | 10.5 | 10 | 1542.5 | 10.5 | 10 |
| 1562.5 | 10.5 | 10 | 1582.5 | 10.5 | 10 | 1602.5 | 10.5 | 10 | 1622.5 | 10.5 | 10 | 1642.5 | 10.5 | 10 |
| 1662.5 | 10.5 | 10 | 1682.5 | 10.5 | 10 | 1702.5 | 10.5 | 10 | 1722.5 | 10.5 | 10 | 1742.5 | 10.5 | 10 |
| 1762.5 | 10.5 | 10 | 1782.5 | 10.5 | 10 | 1802.5 | 10.5 | 10 | 1822.5 | 10.5 | 10 | 1842.5 | 10.5 | 10 |
| 1862.5 | 10.5 | 10 | 1882.5 | 10.5 | 10 | 1902.5 | 10.5 | 10 | 1922.5 | 10.5 | 10 | 1942.5 | 10.5 | 10 |
| 1962.5 | 10.5 | 10 | 1982.5 | 10.5 | 10 | 2002.5 | 10.5 | 10 | 2022.5 | 10.5 | 10 | 2042.5 | 10.5 | 10 |
| 2062.5 | 10.5 | 10 | 2082.5 | 10.5 | 10 | 2102.5 | 10.5 | 10 | 2122.5 | 10.5 | 10 | 2142.5 | 10.5 | 10 |
| 2162.5 | 10.5 | 10 | 2182.5 | 10.5 | 10 | 2202.5 | 10.5 | 10 | 2222.5 | 10.5 | 10 | 2242.5 | 10.5 | 10 |
| 2262.5 | 10.5 | 10 | 2282.5 | 10.5 | 10 | 2302.5 | 10.5 | 10 | 2322.5 | 10.5 | 10 | 2342.5 | 10.5 | 10 |
| 2362.5 | 10.5 | 10 | 2382.5 | 10.5 | 10 | 2402.5 | 10.5 | 10 | 2422.5 | 10.5 | 10 | 2442.5 | 10.5 | 10 |
| 2462.5 | 10.5 | 10 | 2482.5 | 10.5 | 10 | 2502.5 | 10.5 | 10 | 2522.5 | 10.5 | 10 | 2542.5 | 10.5 | 10 |
| 2562.5 | 10.5 | 10 | 2582.5 | 10.5 | 10 | 2602.5 | 10.5 | 10 | 2622.5 | 10.5 | 10 | 2642.5 | 10.5 | 10 |
| 2662.5 | 10.5 | 10 | 2682.5 | 10.5 | 10 | 2702.5 | 10.5 | 10 | 2722.5 | 10.5 | 10 | 2742.5 | 10.5 | 10 |
| 2762.5 | 10.5 | 10 | 2782.5 | 10.5 | 10 | 2802.5 | 10.5 | 10 | 2822.5 | 10.5 | 10 | 2842.5 | 10.5 | 10 |
| 2862.5 | 10.5 | 10 | 2882.5 | 10.5 | 10 | 2902.5 | 10.5 | 10 | 2922.5 | 10.5 | 10 | 2942.5 | 10.5 | 10 |
| 2962.5 | 10.5 | 10 | 2982.5 | 10.5 | 10 | 3002.5 | 10.5 | 10 | 3022.5 | 10.5 | 10 | 3042.5 | 10.5 | 10 |
| 3062.5 | 10.5 | 10 | 3082.5 | 10.5 | 10 | 3102.5 | 10.5 | 10 | 3122.5 | 10.5 | 10 | 3142.5 | 10.5 | 10 |
| 3162.5 | 10.5 | 10 | 3182.5 | 10.5 | 10 | 3202.5 | 10.5 | 10 | 3222.5 | 10.5 | 10 | 3242.5 | 10.5 | 10 |
| 3262.5 | 10.5 | 10 | 3282.5 | 10.5 | 10 | 3302.5 | 10.5 | 10 | 3322.5 | 10.5 | 10 | 3342.5 | 10.5 | 10 |
| 3362.5 | 10.5 | 10 | 3382.5 | 10.5 | 10 | 3402.5 | 10.5 | 10 | 3422.5 | 10.5 | 10 | 3442.5 | 10.5 | 10 |
| 1407.0 | -10.3 | 14 | 1407.0 | 10.3 | 14 | 1427.0 | -10.3 | 14 | 1427.0 | 10.3 | 14 | 1447.0 | -10.3 | 14 |
| 1447.0 | 10.3 | 14 | 1467.0 | -10.3 | 14 | 1467.0 | 10.3 | 14 | 1487.0 | -10.3 | 14 | 1487.0 | 10.3 | 14 |
| 1507.0 | -10.3 | 14 | 1507.0 | 10.3 | 14 | 1527.0 | -10.3 | 14 | 1527.0 | 10.3 | 14 | 1547.0 | -10.3 | 14 |
| 1547.0 | 10.3 | 14 | 1567.0 | -10.3 | 14 | 1567.0 | 10.3 | 14 | 1587.0 | -10.3 | 14 | 1587.0 | 10.3 | 14 |
| 1607.0 | -10.3 | 14 | 1607.0 | 10.3 | 14 | 1627.0 | -10.3 | 14 | 1627.0 | 10.3 | 14 | 1647.0 | -10.3 | 14 |
| 1647.0 | 10.3 | 14 | 1667.0 | -10.3 | 14 | 1667.0 | 10.3 | 14 | 1687.0 | -10.3 | 14 | 1687.0 | 10.3 | 14 |
| 1707.0 | -10.3 | 14 | 1707.0 | 10.3 | 14 | 1727.0 | -10.3 | 14 | 1727.0 | 10.3 | 14 | 1747.0 | -10.3 | 14 |
| 1747.0 | 10.3 | 14 | 1767.0 | -10.3 | 14 | 1767.0 | 10.3 | 14 | 1787.0 | -10.3 | 14 | 1787.0 | 10.3 | 14 |
| 1807.0 | -10.3 | 14 | 1807.0 | 10.3 | 14 | 1827.0 | -10.3 | 14 | 1827.0 | 10.3 | 14 | 1847.0 | -10.3 | 14 |
| 1847.0 | 10.3 | 14 | 1867.0 | -10.3 | 14 | 1867.0 | 10.3 | 14 | 1887.0 | -10.3 | 14 | 1887.0 | 10.3 | 14 |
| 1907.0 | -10.3 | 14 | 1907.0 | 10.3 | 14 | 1927.0 | -10.3 | 14 | 1927.0 | 10.3 | 14 | 1947.0 | -10.3 | 14 |
| 1947.0 | 10.3 | 14 | 1967.0 | -10.3 | 14 | 1967.0 | 10.3 | 14 | 1987.0 | -10.3 | 14 | 1987.0 | 10.3 | 14 |
| 2007.0 | -10.3 | 14 | 2007.0 | 10.3 | 14 | 2027.0 | -10.3 | 14 | 2027.0 | 10.3 | 14 | 2047.0 | -10.3 | 14 |
| 2047.0 | 10.3 | 14 | 2067.0 | -10.3 | 14 | 2067.0 | 10.3 | 14 | 2087.0 | -10.3 | 14 | 2087.0 | 10.3 | 14 |
| 2107.0 | -10.3 | 14 | 2107.0 | 10.3 | 14 | 2127.0 | -10.3 | 14 | 2127.0 | 10.3 | 14 | 2147.0 | -10.3 | 14 |
| 2147.0 | 10.3 | 14 | 2167.0 | -10.3 | 14 | 2167.0 | 10.3 | 14 | 2187.0 | -10.3 | 14 | 2187.0 | 10.3 | 14 |
| 2207.0 | -10.3 | 14 | 2207.0 | 10.3 | 14 | 2227.0 | -10.3 | 14 | 2227.0 | 10.3 | 14 | 2247.0 | -10.3 | 14 |
| 2247.0 | 10.3 | 14 | 2267.0 | -10.3 | 14 | 2267.0 | 10.3 | 14 | 2287.0 | -10.3 | 14 | 2287.0 | 10.3 | 14 |
| 2307.0 | -10.3 | 14 | 2307.0 | 10.3 | 14 | 2327.0 | -10.3 | 14 | 2327.0 | 10.3 | 14 | 2347.0 | -10.3 | 14 |
| 2347.0 | 10.3 | 14 | 2367.0 | -10.3 | 14 | 2367.0 | 10.3 | 14 | 2387.0 | -10.3 | 14 | 2387.0 | 10.3 | 14 |
| 2407.0 | -10.3 | 14 | 2407.0 | 10.3 | 14 | 2427.0 | -10.3 | 14 | 2427.0 | 10.3 | 14 | 2447.0 | -10.3 | 14 |
| 2447.0 | 10.3 | 14 | 2467.0 | -10.3 | 14 | 2467.0 | 10.3 | 14 | 2487.0 | -10.3 | 14 | 2487.0 | 10.3 | 14 |
| 2507.0 | -10.3 | 14 | 2507.0 | 10.3 | 14 | 2527.0 | -10.3 | 14 | 2527.0 | 10.3 | 14 | 2547.0 | -10.3 | 14 |
| 2547.0 | 10.3 | 14 | 2567.0 | -10.3 | 14 | 2567.0 | 10.3 | 14 | 2587.0 | -10.3 | 14 | 2587.0 | 10.3 | 14 |
| 2607.0 | -10.3 | 14 | 2607.0 | 10.3 | 14 | 2627.0 | -10.3 | 14 | 2627.0 | 10.3 | 14 | 2647.0 | -10.3 | 14 |
| 2647.0 | 10.3 | 14 | 2667.0 | -10.3 | 14 | 2667.0 | 10.3 | 14 | 2687.0 | -10.3 | 14 | 2687.0 | 10.3 | 14 |
| 2707.0 | -10.3 | 14 | 2707.0 | 10.3 | 14 | 2727.0 | -10.3 | 14 | 2727.0 | 10.3 | 14 | 2747.0 | -10.3 | 14 |
| 2747.0 | 10.3 | 14 | 2767.0 | -10.3 | 14 | 2767.0 | 10.3 | 14 | 2787.0 | -10.3 | 14 | 2787.0 | 10.3 | 14 |
| 2807.0 | -10.3 | 14 | 2807.0 | 10.3 | 14 | 2827.0 | -10.3 | 14 | 2827.0 | 10.3 | 14 | 2847.0 | -10.3 | 14 |
| 2847.0 | 10.3 | 14 | 2867.0 | -10.3 | 14 | 2867.0 | 10.3 | 14 | 2887.0 | -10.3 | 14 | 2887.0 | 10.3 | 14 |
| 2907.0 | -10.3 | 14 | 2907.0 | 10.3 | 14 | 2927.0 | -10.3 | 14 | 2927.0 | 10.3 | 14 | 2947.0 | -10.3 | 14 |
| 2947.0 | 10.3 | 14 | 2967.0 | -10.3 | 14 | 2967.0 | 10.3 | 14 | 2987.0 | -10.3 | 14 | 2987.0 | 10.3 | 14 |
| 3007.0 | -10.3 | 14 | 3007.0 | 10.3 | 14 | 3027.0 | -10.3 | 14 | 3027.0 | 10.3 | 14 | 3047.0 | -10.3 | 14 |
| 3047.0 | 10.3 | 14 | 3067.0 | -10.3 | 14 | 3067.0 | 10.3 | 14 | 3087.0 | -10.3 | 14 | 3087.0 | 10.3 | 14 |
| 3107.0 | -10.3 | 14 | 3107.0 | 10.3 | 14 | 3127.0 | -10.3 | 14 | 3127.0 | 10.3 | 14 | 3147.0 | -10.3 | 14 |
| 3147.0 | 10.3 | 14 | 3167.0 | -10.3 | 14 | 3167.0 | 10.3 | 14 | 3187.0 | -10.3 | 14 | 3187.0 | 10.3 | 14 |
| 3207.0 | -10.3 | 14 | 3207.0 | 10.3 | 14 | 3227.0 | -10.3 | 14 | 3227.0 | 10.3 | 14 | 3247.0 | -10.3 | 14 |
| 3247.0 | 10.3 | 14 | 3267.0 | -10.3 | 14 | 3267.0 | 10.3 | 14 | 3287.0 | -10.3 | 14 | 3287.0 | 10.3 | 14 |
| 3307.0 | -10.3 | 14 | 3307.0 | 10.3 | 14 | 3327.0 | -10.3 | 14 | 3327.0 | 10.3 | 14 | 3347.0 | -10.3 | 14 |
| 3347.0 | 10.3 | 14 | 3367.0 | -10.3 | 14 | 3367.0 | 10.3 | 14 | 3387.0 | -10.3 | 14 | 3387.0 | 10.3 | 14 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

3407.0 -10.3 14 3407.0 10.3 14

Sezione a quota 435

Coordinate dei vertici

| X | Y |
|--------|-------|
| 1350.0 | -17.5 |
| 1350.0 | 17.5 |
| 3455.0 | 17.5 |
| 3455.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1362.5 | -10.5 | 10 | 1382.5 | -10.5 | 10 | 1402.5 | -10.5 | 10 | 1422.5 | -10.5 | 10 | 1442.5 | -10.5 | 10 |
| 1462.5 | -10.5 | 10 | 1482.5 | -10.5 | 10 | 1502.5 | -10.5 | 10 | 1522.5 | -10.5 | 10 | 1542.5 | -10.5 | 10 |
| 1562.5 | -10.5 | 10 | 1582.5 | -10.5 | 10 | 1602.5 | -10.5 | 10 | 1622.5 | -10.5 | 10 | 1642.5 | -10.5 | 10 |
| 1662.5 | -10.5 | 10 | 1682.5 | -10.5 | 10 | 1702.5 | -10.5 | 10 | 1722.5 | -10.5 | 10 | 1742.5 | -10.5 | 10 |
| 1762.5 | -10.5 | 10 | 1782.5 | -10.5 | 10 | 1802.5 | -10.5 | 10 | 1822.5 | -10.5 | 10 | 1842.5 | -10.5 | 10 |
| 1862.5 | -10.5 | 10 | 1882.5 | -10.5 | 10 | 1902.5 | -10.5 | 10 | 1922.5 | -10.5 | 10 | 1942.5 | -10.5 | 10 |
| 1962.5 | -10.5 | 10 | 1982.5 | -10.5 | 10 | 2002.5 | -10.5 | 10 | 2022.5 | -10.5 | 10 | 2042.5 | -10.5 | 10 |
| 2062.5 | -10.5 | 10 | 2082.5 | -10.5 | 10 | 2102.5 | -10.5 | 10 | 2122.5 | -10.5 | 10 | 2142.5 | -10.5 | 10 |
| 2162.5 | -10.5 | 10 | 2182.5 | -10.5 | 10 | 2202.5 | -10.5 | 10 | 2222.5 | -10.5 | 10 | 2242.5 | -10.5 | 10 |
| 2262.5 | -10.5 | 10 | 2282.5 | -10.5 | 10 | 2302.5 | -10.5 | 10 | 2322.5 | -10.5 | 10 | 2342.5 | -10.5 | 10 |
| 2362.5 | -10.5 | 10 | 2382.5 | -10.5 | 10 | 2402.5 | -10.5 | 10 | 2422.5 | -10.5 | 10 | 2442.5 | -10.5 | 10 |
| 2462.5 | -10.5 | 10 | 2482.5 | -10.5 | 10 | 2502.5 | -10.5 | 10 | 2522.5 | -10.5 | 10 | 2542.5 | -10.5 | 10 |
| 2562.5 | -10.5 | 10 | 2582.5 | -10.5 | 10 | 2602.5 | -10.5 | 10 | 2622.5 | -10.5 | 10 | 2642.5 | -10.5 | 10 |
| 2662.5 | -10.5 | 10 | 2682.5 | -10.5 | 10 | 2702.5 | -10.5 | 10 | 2722.5 | -10.5 | 10 | 2742.5 | -10.5 | 10 |
| 2762.5 | -10.5 | 10 | 2782.5 | -10.5 | 10 | 2802.5 | -10.5 | 10 | 2822.5 | -10.5 | 10 | 2842.5 | -10.5 | 10 |
| 2862.5 | -10.5 | 10 | 2882.5 | -10.5 | 10 | 2902.5 | -10.5 | 10 | 2922.5 | -10.5 | 10 | 2942.5 | -10.5 | 10 |
| 2962.5 | -10.5 | 10 | 2982.5 | -10.5 | 10 | 3002.5 | -10.5 | 10 | 3022.5 | -10.5 | 10 | 3042.5 | -10.5 | 10 |
| 3062.5 | -10.5 | 10 | 3082.5 | -10.5 | 10 | 3102.5 | -10.5 | 10 | 3122.5 | -10.5 | 10 | 3142.5 | -10.5 | 10 |
| 3162.5 | -10.5 | 10 | 3182.5 | -10.5 | 10 | 3202.5 | -10.5 | 10 | 3222.5 | -10.5 | 10 | 3242.5 | -10.5 | 10 |
| 3262.5 | -10.5 | 10 | 3282.5 | -10.5 | 10 | 3302.5 | -10.5 | 10 | 3322.5 | -10.5 | 10 | 3342.5 | -10.5 | 10 |
| 3362.5 | -10.5 | 10 | 3382.5 | -10.5 | 10 | 3402.5 | -10.5 | 10 | 3422.5 | -10.5 | 10 | 3442.5 | -10.5 | 10 |
| 1362.5 | 10.5 | 10 | 1382.5 | 10.5 | 10 | 1402.5 | 10.5 | 10 | 1422.5 | 10.5 | 10 | 1442.5 | 10.5 | 10 |
| 1462.5 | 10.5 | 10 | 1482.5 | 10.5 | 10 | 1502.5 | 10.5 | 10 | 1522.5 | 10.5 | 10 | 1542.5 | 10.5 | 10 |
| 1562.5 | 10.5 | 10 | 1582.5 | 10.5 | 10 | 1602.5 | 10.5 | 10 | 1622.5 | 10.5 | 10 | 1642.5 | 10.5 | 10 |
| 1662.5 | 10.5 | 10 | 1682.5 | 10.5 | 10 | 1702.5 | 10.5 | 10 | 1722.5 | 10.5 | 10 | 1742.5 | 10.5 | 10 |
| 1762.5 | 10.5 | 10 | 1782.5 | 10.5 | 10 | 1802.5 | 10.5 | 10 | 1822.5 | 10.5 | 10 | 1842.5 | 10.5 | 10 |
| 1862.5 | 10.5 | 10 | 1882.5 | 10.5 | 10 | 1902.5 | 10.5 | 10 | 1922.5 | 10.5 | 10 | 1942.5 | 10.5 | 10 |
| 1962.5 | 10.5 | 10 | 1982.5 | 10.5 | 10 | 2002.5 | 10.5 | 10 | 2022.5 | 10.5 | 10 | 2042.5 | 10.5 | 10 |
| 2062.5 | 10.5 | 10 | 2082.5 | 10.5 | 10 | 2102.5 | 10.5 | 10 | 2122.5 | 10.5 | 10 | 2142.5 | 10.5 | 10 |
| 2162.5 | 10.5 | 10 | 2182.5 | 10.5 | 10 | 2202.5 | 10.5 | 10 | 2222.5 | 10.5 | 10 | 2242.5 | 10.5 | 10 |
| 2262.5 | 10.5 | 10 | 2282.5 | 10.5 | 10 | 2302.5 | 10.5 | 10 | 2322.5 | 10.5 | 10 | 2342.5 | 10.5 | 10 |
| 2362.5 | 10.5 | 10 | 2382.5 | 10.5 | 10 | 2402.5 | 10.5 | 10 | 2422.5 | 10.5 | 10 | 2442.5 | 10.5 | 10 |
| 2462.5 | 10.5 | 10 | 2482.5 | 10.5 | 10 | 2502.5 | 10.5 | 10 | 2522.5 | 10.5 | 10 | 2542.5 | 10.5 | 10 |
| 2562.5 | 10.5 | 10 | 2582.5 | 10.5 | 10 | 2602.5 | 10.5 | 10 | 2622.5 | 10.5 | 10 | 2642.5 | 10.5 | 10 |
| 2662.5 | 10.5 | 10 | 2682.5 | 10.5 | 10 | 2702.5 | 10.5 | 10 | 2722.5 | 10.5 | 10 | 2742.5 | 10.5 | 10 |
| 2762.5 | 10.5 | 10 | 2782.5 | 10.5 | 10 | 2802.5 | 10.5 | 10 | 2822.5 | 10.5 | 10 | 2842.5 | 10.5 | 10 |
| 2862.5 | 10.5 | 10 | 2882.5 | 10.5 | 10 | 2902.5 | 10.5 | 10 | 2922.5 | 10.5 | 10 | 2942.5 | 10.5 | 10 |
| 2962.5 | 10.5 | 10 | 2982.5 | 10.5 | 10 | 3002.5 | 10.5 | 10 | 3022.5 | 10.5 | 10 | 3042.5 | 10.5 | 10 |
| 3062.5 | 10.5 | 10 | 3082.5 | 10.5 | 10 | 3102.5 | 10.5 | 10 | 3122.5 | 10.5 | 10 | 3142.5 | 10.5 | 10 |
| 3162.5 | 10.5 | 10 | 3182.5 | 10.5 | 10 | 3202.5 | 10.5 | 10 | 3222.5 | 10.5 | 10 | 3242.5 | 10.5 | 10 |
| 3262.5 | 10.5 | 10 | 3282.5 | 10.5 | 10 | 3302.5 | 10.5 | 10 | 3322.5 | 10.5 | 10 | 3342.5 | 10.5 | 10 |
| 3362.5 | 10.5 | 10 | 3382.5 | 10.5 | 10 | 3402.5 | 10.5 | 10 | 3422.5 | 10.5 | 10 | 3442.5 | 10.5 | 10 |
| 1407.0 | -10.3 | 14 | 1407.0 | 10.3 | 14 | 1427.0 | -10.3 | 14 | 1427.0 | 10.3 | 14 | 1447.0 | -10.3 | 14 |
| 1447.0 | 10.3 | 14 | 1467.0 | -10.3 | 14 | 1467.0 | 10.3 | 14 | 1487.0 | -10.3 | 14 | 1487.0 | 10.3 | 14 |
| 1507.0 | -10.3 | 14 | 1507.0 | 10.3 | 14 | 1527.0 | -10.3 | 14 | 1527.0 | 10.3 | 14 | 1547.0 | -10.3 | 14 |
| 1547.0 | 10.3 | 14 | 1567.0 | -10.3 | 14 | 1567.0 | 10.3 | 14 | 1587.0 | -10.3 | 14 | 1587.0 | 10.3 | 14 |
| 1607.0 | -10.3 | 14 | 1607.0 | 10.3 | 14 | 1627.0 | -10.3 | 14 | 1627.0 | 10.3 | 14 | 1647.0 | -10.3 | 14 |
| 1647.0 | 10.3 | 14 | 1667.0 | -10.3 | 14 | 1667.0 | 10.3 | 14 | 1687.0 | -10.3 | 14 | 1687.0 | 10.3 | 14 |
| 1707.0 | -10.3 | 14 | 1707.0 | 10.3 | 14 | 1727.0 | -10.3 | 14 | 1727.0 | 10.3 | 14 | 1747.0 | -10.3 | 14 |
| 1747.0 | 10.3 | 14 | 1767.0 | -10.3 | 14 | 1767.0 | 10.3 | 14 | 1787.0 | -10.3 | 14 | 1787.0 | 10.3 | 14 |
| 1807.0 | -10.3 | 14 | 1807.0 | 10.3 | 14 | 1827.0 | -10.3 | 14 | 1827.0 | 10.3 | 14 | 1847.0 | -10.3 | 14 |
| 1847.0 | 10.3 | 14 | 1867.0 | -10.3 | 14 | 1867.0 | 10.3 | 14 | 1887.0 | -10.3 | 14 | 1887.0 | 10.3 | 14 |
| 1907.0 | -10.3 | 14 | 1907.0 | 10.3 | 14 | 1927.0 | -10.3 | 14 | 1927.0 | 10.3 | 14 | 1947.0 | -10.3 | 14 |
| 1947.0 | 10.3 | 14 | 1967.0 | -10.3 | 14 | 1967.0 | 10.3 | 14 | 1987.0 | -10.3 | 14 | 1987.0 | 10.3 | 14 |
| 2007.0 | -10.3 | 14 | 2007.0 | 10.3 | 14 | 2027.0 | -10.3 | 14 | 2027.0 | 10.3 | 14 | 2047.0 | -10.3 | 14 |
| 2047.0 | 10.3 | 14 | 2067.0 | -10.3 | 14 | 2067.0 | 10.3 | 14 | 2087.0 | -10.3 | 14 | 2087.0 | 10.3 | 14 |
| 2107.0 | -10.3 | 14 | 2107.0 | 10.3 | 14 | 2127.0 | -10.3 | 14 | 2127.0 | 10.3 | 14 | 2147.0 | -10.3 | 14 |
| 2147.0 | 10.3 | 14 | 2167.0 | -10.3 | 14 | 2167.0 | 10.3 | 14 | 2187.0 | -10.3 | 14 | 2187.0 | 10.3 | 14 |
| 2207.0 | -10.3 | 14 | 2207.0 | 10.3 | 14 | 2227.0 | -10.3 | 14 | 2227.0 | 10.3 | 14 | 2247.0 | -10.3 | 14 |
| 2247.0 | 10.3 | 14 | 2267.0 | -10.3 | 14 | 2267.0 | 10.3 | 14 | 2287.0 | -10.3 | 14 | 2287.0 | 10.3 | 14 |
| 2307.0 | -10.3 | 14 | 2307.0 | 10.3 | 14 | 2327.0 | -10.3 | 14 | 2327.0 | 10.3 | 14 | 2347.0 | -10.3 | 14 |
| 2347.0 | 10.3 | 14 | 2367.0 | -10.3 | 14 | 2367.0 | 10.3 | 14 | 2387.0 | -10.3 | 14 | 2387.0 | 10.3 | 14 |
| 2407.0 | -10.3 | 14 | 2407.0 | 10.3 | 14 | 2427.0 | -10.3 | 14 | 2427.0 | 10.3 | 14 | 2447.0 | -10.3 | 14 |
| 2447.0 | 10.3 | 14 | 2467.0 | -10.3 | 14 | 2467.0 | 10.3 | 14 | 2487.0 | -10.3 | 14 | 2487.0 | 10.3 | 14 |
| 2507.0 | -10.3 | 14 | 2507.0 | 10.3 | 14 | 2527.0 | -10.3 | 14 | 2527.0 | 10.3 | 14 | 2547.0 | -10.3 | 14 |
| 2547.0 | 10.3 | 14 | 2567.0 | -10.3 | 14 | 2567.0 | 10.3 | 14 | 2587.0 | -10.3 | 14 | 2587.0 | 10.3 | 14 |
| 2607.0 | -10.3 | 14 | 2607.0 | 10.3 | 14 | 2627.0 | -10.3 | 14 | 2627.0 | 10.3 | 14 | 2647.0 | -10.3 | 14 |
| 2647.0 | 10.3 | 14 | 2667.0 | -10.3 | 14 | 2667.0 | 10.3 | 14 | 2687.0 | -10.3 | 14 | 2687.0 | 10.3 | 14 |
| 2707.0 | -10.3 | 14 | 2707.0 | 10.3 | 14 | 2727.0 | -10.3 | 14 | 2727.0 | 10.3 | 14 | 2747.0 | -10.3 | 14 |
| 2747.0 | 10.3 | 14 | 2767.0 | -10.3 | 14 | 2767.0 | 10.3 | 14 | 2787.0 | -10.3 | 14 | 2787.0 | 10.3 | 14 |
| 2807.0 | -10.3 | 14 | 2807.0 | 10.3 | 14 | 2827.0 | -10.3 | 14 | 2827.0 | 10.3 | 14 | 2847.0 | -10.3 | 14 |
| 2847.0 | 10.3 | 14 | 2867.0 | -10.3 | 14 | 2867.0 | 10.3 | 14 | 2887.0 | -10.3 | 14 | 2887.0 | 10.3 | 14 |
| 2907.0 | -10.3 | 14 | 2907.0 | 10.3 | 14 | 2927.0 | -10.3 | 14 | 2927.0 | 10.3 | 14 | 2947.0 | -10.3 | 14 |
| 2947.0 | 10.3 | 14 | 2967.0 | -10.3 | 14 | 2967.0 | 10.3 | 14 | 2987.0 | -10.3 | 14 | 2987.0 | 10.3 | 14 |
| 3007.0 | -10.3 | 14 | 3007.0 | 10.3 | 14 | 3027.0 | -10.3 | 14 | 3027.0 | 10.3 | 14 | 3047.0 | -10.3 | 14 |
| 3047.0 | 10.3 | 14 | 3067.0 | -10.3 | 14 | 3067.0 | 10.3 | 14 | 3087.0 | -10.3 | 14 | 3087.0 | 10.3 | 14 |
| 3107.0 | -10.3 | 14 | 3107.0 | 10.3 | 14 | 3127.0 | -10.3 | 14 | 3127.0 | 10.3 | 14 | 3147.0 | -10.3 | 14 |
| 3147.0 | 10.3 | 14 | 3167.0 | -10.3 | 14 | 3167.0 | 10.3 | 14 | 3187.0 | -10.3 | 14 | 3187.0 | 10.3 | 14 |
| 3207.0 | -10.3 | 14 | 3207.0 | 10.3 | 14 | 3227.0 | -10.3 | 14 | 3227.0 | 10.3 | 14 | 3247.0 | -10.3 | 14 |
| 3247.0 | 10.3 | 14 | 3267.0 | -10.3 | 14 | 3267.0 | 10.3 | 14 | 3287.0 | -10.3 | 14 | 3287.0 | 10.3 | 14 |
| 3307.0 | -10.3 | 14 | 3307.0 | 10.3 | 14 | 3327.0 | -10.3 | 14 | 3327.0 | 10.3 | 14 | 3347.0 | -10.3 | 14 |
| 3347.0 | 10.3 | 14 | 3367.0 | -10.3 | 14 | 3367.0 | 10.3 | 14 | 3387.0 | -10.3 | 14 | 3387.0 | 10.3 | 14 |
| 3407.0 | -10.3 | 14 | 3407.0 | 10.3 | 14 | 1362.5 | -10.3 | 14 | 1362.5 | 10.3 | 14 | 1382.5 | -10.3 | 14 |
| 1382.5 | 10.3 | 14 | 1402.5 | -10.3 | 14 | 1402.5 | 10.3 | 14 | 1422.5 | -10.3 | 14 | 1422.5 | 10.3 | 14 |
| | | | | | | | | | | | | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1882.5 | 10.3 | 14 | 1902.5 | -10.3 | 14 | 1902.5 | 10.3 | 14 | 1922.5 | -10.3 | 14 | 1922.5 | 10.3 | 14 |
| 1942.5 | -10.3 | 14 | 1942.5 | 10.3 | 14 | 1962.5 | -10.3 | 14 | 1962.5 | 10.3 | 14 | 1982.5 | -10.3 | 14 |
| 1982.5 | 10.3 | 14 | 2002.5 | -10.3 | 14 | 2002.5 | 10.3 | 14 | 2022.5 | -10.3 | 14 | 2022.5 | 10.3 | 14 |
| 2042.5 | -10.3 | 14 | 2042.5 | 10.3 | 14 | 2062.5 | -10.3 | 14 | 2062.5 | 10.3 | 14 | 2082.5 | -10.3 | 14 |
| 2082.5 | 10.3 | 14 | 2102.5 | -10.3 | 14 | 2102.5 | 10.3 | 14 | 2122.5 | -10.3 | 14 | 2122.5 | 10.3 | 14 |
| 2142.5 | -10.3 | 14 | 2142.5 | 10.3 | 14 | 2162.5 | -10.3 | 14 | 2162.5 | 10.3 | 14 | 2182.5 | -10.3 | 14 |
| 2182.5 | 10.3 | 14 | 2202.5 | -10.3 | 14 | 2202.5 | 10.3 | 14 | 2222.5 | -10.3 | 14 | 2222.5 | 10.3 | 14 |
| 2242.5 | -10.3 | 14 | 2242.5 | 10.3 | 14 | 2262.5 | -10.3 | 14 | 2262.5 | 10.3 | 14 | 2282.5 | -10.3 | 14 |
| 2282.5 | 10.3 | 14 | 2302.5 | -10.3 | 14 | 2302.5 | 10.3 | 14 | 2322.5 | -10.3 | 14 | 2322.5 | 10.3 | 14 |
| 2342.5 | -10.3 | 14 | 2342.5 | 10.3 | 14 | 2362.5 | -10.3 | 14 | 2362.5 | 10.3 | 14 | 2382.5 | -10.3 | 14 |
| 2382.5 | 10.3 | 14 | 2402.5 | -10.3 | 14 | 2402.5 | 10.3 | 14 | 2422.5 | -10.3 | 14 | 2422.5 | 10.3 | 14 |
| 2442.5 | -10.3 | 14 | 2442.5 | 10.3 | 14 | 2462.5 | -10.3 | 14 | 2462.5 | 10.3 | 14 | 2482.5 | -10.3 | 14 |
| 2482.5 | 10.3 | 14 | 2502.5 | -10.3 | 14 | 2502.5 | 10.3 | 14 | 2522.5 | -10.3 | 14 | 2522.5 | 10.3 | 14 |
| 2542.5 | -10.3 | 14 | 2542.5 | 10.3 | 14 | 2562.5 | -10.3 | 14 | 2562.5 | 10.3 | 14 | 2582.5 | -10.3 | 14 |
| 2582.5 | 10.3 | 14 | 2602.5 | -10.3 | 14 | 2602.5 | 10.3 | 14 | 2622.5 | -10.3 | 14 | 2622.5 | 10.3 | 14 |
| 2642.5 | -10.3 | 14 | 2642.5 | 10.3 | 14 | 2662.5 | -10.3 | 14 | 2662.5 | 10.3 | 14 | 2682.5 | -10.3 | 14 |
| 2682.5 | 10.3 | 14 | 2702.5 | -10.3 | 14 | 2702.5 | 10.3 | 14 | 2722.5 | -10.3 | 14 | 2722.5 | 10.3 | 14 |
| 2742.5 | -10.3 | 14 | 2742.5 | 10.3 | 14 | 2762.5 | -10.3 | 14 | 2762.5 | 10.3 | 14 | 2782.5 | -10.3 | 14 |
| 2782.5 | 10.3 | 14 | 2802.5 | -10.3 | 14 | 2802.5 | 10.3 | 14 | 2822.5 | -10.3 | 14 | 2822.5 | 10.3 | 14 |
| 2842.5 | -10.3 | 14 | 2842.5 | 10.3 | 14 | 2862.5 | -10.3 | 14 | 2862.5 | 10.3 | 14 | 2882.5 | -10.3 | 14 |
| 2882.5 | 10.3 | 14 | 2902.5 | -10.3 | 14 | 2902.5 | 10.3 | 14 | 2922.5 | -10.3 | 14 | 2922.5 | 10.3 | 14 |
| 2942.5 | -10.3 | 14 | 2942.5 | 10.3 | 14 | 2962.5 | -10.3 | 14 | 2962.5 | 10.3 | 14 | 2982.5 | -10.3 | 14 |
| 2982.5 | 10.3 | 14 | 3002.5 | -10.3 | 14 | 3002.5 | 10.3 | 14 | 3022.5 | -10.3 | 14 | 3022.5 | 10.3 | 14 |
| 3042.5 | -10.3 | 14 | 3042.5 | 10.3 | 14 | 3062.5 | -10.3 | 14 | 3062.5 | 10.3 | 14 | 3082.5 | -10.3 | 14 |
| 3082.5 | 10.3 | 14 | 3102.5 | -10.3 | 14 | 3102.5 | 10.3 | 14 | 3122.5 | -10.3 | 14 | 3122.5 | 10.3 | 14 |
| 3142.5 | -10.3 | 14 | 3142.5 | 10.3 | 14 | 3162.5 | -10.3 | 14 | 3162.5 | 10.3 | 14 | 3182.5 | -10.3 | 14 |
| 3182.5 | 10.3 | 14 | 3202.5 | -10.3 | 14 | 3202.5 | 10.3 | 14 | 3222.5 | -10.3 | 14 | 3222.5 | 10.3 | 14 |
| 3242.5 | -10.3 | 14 | 3242.5 | 10.3 | 14 | 3262.5 | -10.3 | 14 | 3262.5 | 10.3 | 14 | 3282.5 | -10.3 | 14 |
| 3282.5 | 10.3 | 14 | 3302.5 | -10.3 | 14 | 3302.5 | 10.3 | 14 | 3322.5 | -10.3 | 14 | 3322.5 | 10.3 | 14 |
| 3342.5 | -10.3 | 14 | 3342.5 | 10.3 | 14 | 3362.5 | -10.3 | 14 | 3362.5 | 10.3 | 14 | 3382.5 | -10.3 | 14 |
| 3382.5 | 10.3 | 14 | 3402.5 | -10.3 | 14 | 3402.5 | 10.3 | 14 | 3422.5 | -10.3 | 14 | 3422.5 | 10.3 | 14 |
| 3442.5 | -10.3 | 14 | 3442.5 | 10.3 | 14 | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo
Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura
fd fcd Hcr q.Hcr hw Lw n.p. hs
188 14 283 243 495 2105 2 243

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|-----------|----------|--------|--------|--------|----------------|
| 0 | -7290979 | -3248037 | -75575 | -75575 | -75575 | 5.0869 3 SLV |
| 0 | -10250360 | -3253768 | -53211 | -51211 | -53211 | 3.4260 2 SLV |
| 68 | -2094597 | 46006 | -61854 | -61854 | -61854 | 17.6540 1 SLV |
| 68 | -4527224 | -1917958 | -47353 | -43025 | -47353 | 7.4362 1 SLV |
| 135 | 1405224 | 2951196 | -56063 | -56063 | -56063 | 58.4009 2 SLV |
| 135 | 2360896 | -1229007 | -27202 | -43814 | -27202 | 30.6332 7 SLV |
| 165 | 2436103 | 3014679 | -59920 | -59920 | -59920 | 25.6437 2 SLV |
| 165 | 2576310 | -360433 | -32870 | -46366 | -32870 | 22.4151 7 SLV |
| 300 | 2585159 | 3233863 | -28766 | -28766 | -28766 | 12.0277 2 SLV |
| 300 | 2597079 | 5458475 | -28539 | -22207 | -28539 | 11.8016 14 SLV |
| 435 | 67142 | 1845664 | -1924 | -1924 | -1924 | 566.2852 1 SLV |
| 435 | 69695 | -1566588 | 1042 | -1570 | 1042 | 398.4356 3 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|------------------|
| 0 | -82371 | -5781338 | 70.1868 6 SLV |
| 68 | -66710 | -6380542 | 95.6461 6 SLV |
| 135 | -60712 | -6202756 | 102.1663 6 SLV |
| 165 | -59597 | -6123740 | 102.7526 6 SLV |
| 300 | -30350 | -5768168 | 190.0563 10 SLV |
| 435 | -4310 | -5544290 | 1286.4980 10 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrzd | comb |
|-------|---------|---------|---------|--------|
| 0 | 1.00 | -91643 | 2787345 | 2 SLV |
| 0 | 1.00 | -149458 | 2784613 | 14 SLV |
| 68 | 1.00 | -85783 | 2784516 | 1 SLV |
| 68 | 1.00 | -150355 | 2782072 | 14 SLV |
| 135 | 1.00 | -77297 | 2783445 | 1 SLV |
| 135 | 1.00 | -146278 | 2781366 | 14 SLV |
| 165 | 1.00 | -72713 | 2784157 | 1 SLV |
| 165 | 1.00 | -123559 | 2782175 | 14 SLV |
| 300 | 1.00 | -43547 | 2777910 | 1 SLV |
| 300 | 1.00 | -87818 | 2777853 | 14 SLV |
| 435 | 1.00 | -9541 | 2772530 | 1 SLV |
| 435 | 1.00 | -25212 | 2772981 | 14 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-------|--------|--------|---------|--------|---------|--------|
| 0 | 799.2 | 0.0090 | 0.0108 | -91643 | -76002 | 2084140 | 2 SLV |
| 0 | 799.2 | 0.0090 | 0.0108 | -149458 | -62341 | 2084140 | 14 SLV |
| 68 | 799.2 | 0.0170 | 0.0108 | -85783 | -61854 | 3913186 | 1 SLV |
| 68 | 799.2 | 0.0170 | 0.0108 | -150355 | -49635 | 3913186 | 14 SLV |
| 135 | 799.2 | 0.0170 | 0.0108 | -77297 | -56500 | 3913186 | 1 SLV |
| 135 | 799.2 | 0.0170 | 0.0108 | -146278 | -46107 | 3913186 | 14 SLV |
| 165 | 475.9 | 0.0170 | 0.0065 | -72713 | -60059 | 3913186 | 1 SLV |
| 165 | 475.9 | 0.0170 | 0.0065 | -123559 | -50149 | 3913186 | 14 SLV |
| 300 | 475.9 | 0.0170 | 0.0065 | -43547 | -28828 | 3913186 | 1 SLV |
| 300 | 475.9 | 0.0170 | 0.0065 | -87818 | -28539 | 3913186 | 14 SLV |
| 435 | 799.2 | 0.0152 | 0.0108 | -9541 | -1924 | 3501907 | 1 SLV |
| 435 | 799.2 | 0.0152 | 0.0108 | -25212 | -4182 | 3501907 | 14 SLV |

Pannello P9
Parete fra le coordinate in pianta (3438;270) (3438;1398)
da quota -40 a quota 455
Valori in daN, cm
C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|---------|-------|----|------|------|-----|-----|--------|--------|-------|---------|-------|----------|
| 3813 | o 68 | 35 | 9.1 | 9.1 | 7.1 | 7.1 | 10.002 | 16 SLV | -356 | 103746 | -3563 | -1037710 |
| | v 100 | 35 | 16.3 | 16.3 | 7.7 | 7.7 | 1.028 | 14 SLV | 12416 | 1522522 | 12765 | -1565312 |
| 5390 | o 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | 10.431 | 2 SLV | 2749 | -121718 | 28669 | 1269618 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|------|----|-----|------|------|------|-----|-------|-------|-----|------|--------|---------|----------|---------|
| v | 50 | 35 | 12.4 | 12.4 | 7.9 | 7.9 | 1.501 | 15 | SLV | 5335 | 747739 | 8008 | -1122323 | |
| 5419 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | 6.280 | 15 | SLV | 2149 | -232631 | 13497 | 1461013 |
| | v | 50 | 35 | 6.4 | 6.4 | 7.5 | 7.5 | 1.067 | 15 | SLV | 20376 | 395598 | 21735 | -421985 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
|---------|---|-----|-----|------|------|-----|-----|-------|------|----------|---------|--------|------|----------|----------|------|--------|-------|------|
| 3813 | o | 68 | 35 | 9.1 | 9.1 | 7.1 | 7.1 | -7.3 | 1 ra | -2.81E01 | 5.66E04 | 249.4 | 1 ra | -2.81E01 | 5.66E04 | 0.00 | 3.9 | 0.0 | 1 ra |
| | v | 100 | 35 | 16.3 | 16.3 | 7.7 | 7.7 | -77.7 | 1 ra | 7.69E03 | 9.14E05 | 2830.9 | 1 ra | 7.69E03 | 9.14E05 | 0.16 | 0.0 | 162.4 | 1 ra |
| 5390 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | -5.4 | 1 ra | 1.02E03 | 6.53E04 | 210.6 | 1 ra | 1.02E03 | 6.53E04 | 0.00 | 3.3 | 0.0 | 1 ra |
| | v | 50 | 35 | 12.4 | 12.4 | 7.9 | 7.9 | -64.0 | 1 ra | -2.28E03 | 4.47E05 | 1771.0 | 1 ra | 1.71E04 | -2.55E05 | 0.05 | 0.0 | 88.4 | 1 ra |
| 5419 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | -5.2 | 1 ra | -1.18E03 | 6.26E04 | 225.4 | 1 ra | 2.03E03 | -5.75E04 | 0.00 | 3.2 | 0.0 | 1 ra |
| | v | 50 | 35 | 6.4 | 6.4 | 7.5 | 7.5 | -37.0 | 1 ra | 1.21E04 | 2.16E05 | 2549.8 | 1 ra | 1.21E04 | 2.16E05 | 0.00 | 26.8 | 0.0 | 1 ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
|---------|---|-----|-----|------|------|-----|-----|-------|------|----------|---------|--------|------|---------|----------|------|--------|-------|------|
| 3813 | o | 68 | 35 | 9.1 | 9.1 | 7.1 | 7.1 | -6.9 | 3 fr | 8.54E00 | 5.32E04 | 236.5 | 3 fr | 8.54E00 | 5.32E04 | 0.00 | 3.7 | 0.0 | 1 fr |
| | v | 100 | 35 | 16.3 | 16.3 | 7.7 | 7.7 | -73.1 | 3 fr | 7.22E03 | 8.60E05 | 2662.6 | 3 fr | 7.22E03 | 8.60E05 | 0.15 | 0.0 | 162.4 | 3 fr |
| 5390 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | -4.6 | 3 fr | 4.33E02 | 5.54E04 | 197.1 | 1 fr | 1.59E03 | 5.28E04 | 0.00 | 2.9 | 0.0 | 1 fr |
| | v | 50 | 35 | 12.4 | 12.4 | 7.9 | 7.9 | -55.5 | 3 fr | -8.92E02 | 3.89E05 | 1509.5 | 3 fr | 1.48E04 | -2.15E05 | 0.04 | 0.0 | 89.3 | 3 fr |
| 5419 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | -4.8 | 3 fr | -1.02E03 | 5.84E04 | 196.5 | 3 fr | 1.61E03 | -5.22E04 | 0.00 | 2.9 | 0.0 | 1 fr |
| | v | 50 | 35 | 6.4 | 6.4 | 7.5 | 7.5 | -34.5 | 3 fr | 1.06E04 | 1.99E05 | 2310.7 | 3 fr | 1.06E04 | 1.99E05 | 0.00 | 24.5 | 0.0 | 1 fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
|---------|---|-----|-----|------|------|-----|-----|-------|------|----------|---------|--------|------|----------|----------|------|--------|-----|------|
| 3813 | o | 68 | 35 | 9.1 | 9.1 | 7.1 | 7.1 | -4.8 | 1 q. | -2.17E02 | 3.68E04 | 150.7 | 1 q. | -2.17E02 | 3.68E04 | 0.00 | 2.5 | 0.0 | 1 q. |
| | v | 100 | 35 | 16.3 | 16.3 | 7.7 | 7.7 | -50.0 | 1 q. | 4.87E03 | 5.88E05 | 1819.5 | 1 q. | 4.87E03 | 5.88E05 | 0.00 | 28.6 | 0.0 | 1 q. |
| 5390 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | -4.0 | 1 q. | 1.31E03 | 5.01E04 | 180.1 | 1 q. | 1.31E03 | 5.01E04 | 0.00 | 2.7 | 0.0 | 1 q. |
| | v | 50 | 35 | 12.4 | 12.4 | 7.9 | 7.9 | -43.5 | 1 q. | -3.14E03 | 3.03E05 | 1309.6 | 1 q. | 1.17E04 | -2.00E05 | 0.00 | 25.8 | 0.0 | 1 q. |
| 5419 | o | 100 | 35 | 15.2 | 15.2 | 7.1 | 7.1 | -3.3 | 1 q. | -8.93E02 | 4.05E04 | 156.1 | 1 q. | 1.53E03 | -3.81E04 | 0.00 | 2.2 | 0.0 | 1 q. |
| | v | 50 | 35 | 6.4 | 6.4 | 7.5 | 7.5 | -23.4 | 1 q. | 7.90E03 | 1.37E05 | 1642.8 | 1 q. | 7.90E03 | 1.37E05 | 0.00 | 17.2 | 0.0 | 1 q. |

Verifica dei pannelli

Pannello : Pannello da Filo 20 a Filo 21

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 40.0 |
| 305.0 | 40.0 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 40.0 |
| 1340.0 | 40.0 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -40.0 |
| 1305.0 | -40.0 |
| 1305.0 | -17.5 |
| 1125.0 | -17.5 |
| 1125.0 | -40.0 |
| 1090.0 | -40.0 |
| 1090.0 | -17.5 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 290.0 | -10.5 | 10 | 310.0 | -10.5 | 10 | 330.0 | -10.5 | 10 | 350.0 | -10.5 | 10 | 370.0 | -10.5 | 10 |
| 390.0 | -10.5 | 10 | 410.0 | -10.5 | 10 | 430.0 | -10.5 | 10 | 450.0 | -10.5 | 10 | 470.0 | -10.5 | 10 |
| 490.0 | -10.5 | 10 | 510.0 | -10.5 | 10 | 530.0 | -10.5 | 10 | 550.0 | -10.5 | 10 | 570.0 | -10.5 | 10 |
| 590.0 | -10.5 | 10 | 610.0 | -10.5 | 10 | 630.0 | -10.5 | 10 | 650.0 | -10.5 | 10 | 670.0 | -10.5 | 10 |
| 690.0 | -10.5 | 10 | 710.0 | -10.5 | 10 | 730.0 | -10.5 | 10 | 750.0 | -10.5 | 10 | 770.0 | -10.5 | 10 |
| 790.0 | -10.5 | 10 | 810.0 | -10.5 | 10 | 830.0 | -10.5 | 10 | 850.0 | -10.5 | 10 | 870.0 | -10.5 | 10 |
| 890.0 | -10.5 | 10 | 910.0 | -10.5 | 10 | 930.0 | -10.5 | 10 | 950.0 | -10.5 | 10 | 970.0 | -10.5 | 10 |
| 990.0 | -10.5 | 10 | 1010.0 | -10.5 | 10 | 1030.0 | -10.5 | 10 | 1050.0 | -10.5 | 10 | 1070.0 | -10.5 | 10 |
| 1090.0 | -10.5 | 10 | 1110.0 | -10.5 | 10 | 1130.0 | -10.5 | 10 | 1150.0 | -10.5 | 10 | 1170.0 | -10.5 | 10 |
| 1190.0 | -10.5 | 10 | 1210.0 | -10.5 | 10 | 1230.0 | -10.5 | 10 | 1250.0 | -10.5 | 10 | 1270.0 | -10.5 | 10 |
| 1290.0 | -10.5 | 10 | 1310.0 | -10.5 | 10 | 1330.0 | -10.5 | 10 | 1350.0 | -10.5 | 10 | 1370.0 | -10.5 | 10 |
| 1390.0 | -10.5 | 10 | 290.0 | 10.5 | 10 | 310.0 | 10.5 | 10 | 330.0 | 10.5 | 10 | 350.0 | 10.5 | 10 |
| 370.0 | 10.5 | 10 | 390.0 | 10.5 | 10 | 410.0 | 10.5 | 10 | 430.0 | 10.5 | 10 | 450.0 | 10.5 | 10 |
| 470.0 | 10.5 | 10 | 490.0 | 10.5 | 10 | 510.0 | 10.5 | 10 | 530.0 | 10.5 | 10 | 550.0 | 10.5 | 10 |
| 570.0 | 10.5 | 10 | 590.0 | 10.5 | 10 | 610.0 | 10.5 | 10 | 630.0 | 10.5 | 10 | 650.0 | 10.5 | 10 |
| 670.0 | 10.5 | 10 | 690.0 | 10.5 | 10 | 710.0 | 10.5 | 10 | 730.0 | 10.5 | 10 | 750.0 | 10.5 | 10 |
| 770.0 | 10.5 | 10 | 790.0 | 10.5 | 10 | 810.0 | 10.5 | 10 | 830.0 | 10.5 | 10 | 850.0 | 10.5 | 10 |
| 870.0 | 10.5 | 10 | 890.0 | 10.5 | 10 | 910.0 | 10.5 | 10 | 930.0 | 10.5 | 10 | 950.0 | 10.5 | 10 |
| 970.0 | 10.5 | 10 | 990.0 | 10.5 | 10 | 1010.0 | 10.5 | 10 | 1030.0 | 10.5 | 10 | 1050.0 | 10.5 | 10 |
| 1070.0 | 10.5 | 10 | 1090.0 | 10.5 | 10 | 1110.0 | 10.5 | 10 | 1130.0 | 10.5 | 10 | 1150.0 | 10.5 | 10 |
| 1170.0 | 10.5 | 10 | 1190.0 | 10.5 | 10 | 1210.0 | 10.5 | 10 | 1230.0 | 10.5 | 10 | 1250.0 | 10.5 | 10 |
| 1270.0 | 10.5 | 10 | 1290.0 | 10.5 | 10 | 1310.0 | 10.5 | 10 | 1330.0 | 10.5 | 10 | 1350.0 | 10.5 | 10 |
| 1370.0 | 10.5 | 10 | 1390.0 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 96.9 |
| 305.0 | 96.9 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 96.9 |
| 1340.0 | 96.9 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -96.9 |
| 1305.0 | -96.9 |
| 1305.0 | -17.5 |
| 1125.0 | -17.5 |
| 1125.0 | -96.9 |
| 1090.0 | -96.9 |
| 1090.0 | -17.5 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

270.0 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 290.0 | -10.5 | 10 | 310.0 | -10.5 | 10 | 330.0 | -10.5 | 10 | 350.0 | -10.5 | 10 | 370.0 | -10.5 | 10 |
| 390.0 | -10.5 | 10 | 410.0 | -10.5 | 10 | 430.0 | -10.5 | 10 | 450.0 | -10.5 | 10 | 470.0 | -10.5 | 10 |
| 490.0 | -10.5 | 10 | 510.0 | -10.5 | 10 | 530.0 | -10.5 | 10 | 550.0 | -10.5 | 10 | 570.0 | -10.5 | 10 |
| 590.0 | -10.5 | 10 | 610.0 | -10.5 | 10 | 630.0 | -10.5 | 10 | 650.0 | -10.5 | 10 | 670.0 | -10.5 | 10 |
| 690.0 | -10.5 | 10 | 710.0 | -10.5 | 10 | 730.0 | -10.5 | 10 | 750.0 | -10.5 | 10 | 770.0 | -10.5 | 10 |
| 790.0 | -10.5 | 10 | 810.0 | -10.5 | 10 | 830.0 | -10.5 | 10 | 850.0 | -10.5 | 10 | 870.0 | -10.5 | 10 |
| 890.0 | -10.5 | 10 | 910.0 | -10.5 | 10 | 930.0 | -10.5 | 10 | 950.0 | -10.5 | 10 | 970.0 | -10.5 | 10 |
| 990.0 | -10.5 | 10 | 1010.0 | -10.5 | 10 | 1030.0 | -10.5 | 10 | 1050.0 | -10.5 | 10 | 1070.0 | -10.5 | 10 |
| 1090.0 | -10.5 | 10 | 1110.0 | -10.5 | 10 | 1130.0 | -10.5 | 10 | 1150.0 | -10.5 | 10 | 1170.0 | -10.5 | 10 |
| 1190.0 | -10.5 | 10 | 1210.0 | -10.5 | 10 | 1230.0 | -10.5 | 10 | 1250.0 | -10.5 | 10 | 1270.0 | -10.5 | 10 |
| 1290.0 | -10.5 | 10 | 1310.0 | -10.5 | 10 | 1330.0 | -10.5 | 10 | 1350.0 | -10.5 | 10 | 1370.0 | -10.5 | 10 |
| 1390.0 | -10.5 | 10 | 290.0 | 10.5 | 10 | 310.0 | 10.5 | 10 | 330.0 | 10.5 | 10 | 350.0 | 10.5 | 10 |
| 370.0 | 10.5 | 10 | 390.0 | 10.5 | 10 | 410.0 | 10.5 | 10 | 430.0 | 10.5 | 10 | 450.0 | 10.5 | 10 |
| 470.0 | 10.5 | 10 | 490.0 | 10.5 | 10 | 510.0 | 10.5 | 10 | 530.0 | 10.5 | 10 | 550.0 | 10.5 | 10 |
| 570.0 | 10.5 | 10 | 590.0 | 10.5 | 10 | 610.0 | 10.5 | 10 | 630.0 | 10.5 | 10 | 650.0 | 10.5 | 10 |
| 670.0 | 10.5 | 10 | 690.0 | 10.5 | 10 | 710.0 | 10.5 | 10 | 730.0 | 10.5 | 10 | 750.0 | 10.5 | 10 |
| 770.0 | 10.5 | 10 | 790.0 | 10.5 | 10 | 810.0 | 10.5 | 10 | 830.0 | 10.5 | 10 | 850.0 | 10.5 | 10 |
| 870.0 | 10.5 | 10 | 890.0 | 10.5 | 10 | 910.0 | 10.5 | 10 | 930.0 | 10.5 | 10 | 950.0 | 10.5 | 10 |
| 970.0 | 10.5 | 10 | 990.0 | 10.5 | 10 | 1010.0 | 10.5 | 10 | 1030.0 | 10.5 | 10 | 1050.0 | 10.5 | 10 |
| 1070.0 | 10.5 | 10 | 1090.0 | 10.5 | 10 | 1110.0 | 10.5 | 10 | 1130.0 | 10.5 | 10 | 1150.0 | 10.5 | 10 |
| 1170.0 | 10.5 | 10 | 1190.0 | 10.5 | 10 | 1210.0 | 10.5 | 10 | 1230.0 | 10.5 | 10 | 1250.0 | 10.5 | 10 |
| 1270.0 | 10.5 | 10 | 1290.0 | 10.5 | 10 | 1310.0 | 10.5 | 10 | 1330.0 | 10.5 | 10 | 1350.0 | 10.5 | 10 |
| 1370.0 | 10.5 | 10 | 1390.0 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 135

Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 80.0 |
| 305.0 | 80.0 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 80.0 |
| 1340.0 | 80.0 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -80.0 |
| 1305.0 | -80.0 |
| 1305.0 | -17.5 |
| 1125.0 | -17.5 |
| 1125.0 | -80.0 |
| 1090.0 | -80.0 |
| 1090.0 | -17.5 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 290.0 | -10.5 | 10 | 310.0 | -10.5 | 10 | 330.0 | -10.5 | 10 | 350.0 | -10.5 | 10 | 370.0 | -10.5 | 10 |
| 390.0 | -10.5 | 10 | 410.0 | -10.5 | 10 | 430.0 | -10.5 | 10 | 450.0 | -10.5 | 10 | 470.0 | -10.5 | 10 |
| 490.0 | -10.5 | 10 | 510.0 | -10.5 | 10 | 530.0 | -10.5 | 10 | 550.0 | -10.5 | 10 | 570.0 | -10.5 | 10 |
| 590.0 | -10.5 | 10 | 610.0 | -10.5 | 10 | 630.0 | -10.5 | 10 | 650.0 | -10.5 | 10 | 670.0 | -10.5 | 10 |
| 690.0 | -10.5 | 10 | 710.0 | -10.5 | 10 | 730.0 | -10.5 | 10 | 750.0 | -10.5 | 10 | 770.0 | -10.5 | 10 |
| 790.0 | -10.5 | 10 | 810.0 | -10.5 | 10 | 830.0 | -10.5 | 10 | 850.0 | -10.5 | 10 | 870.0 | -10.5 | 10 |
| 890.0 | -10.5 | 10 | 910.0 | -10.5 | 10 | 930.0 | -10.5 | 10 | 950.0 | -10.5 | 10 | 970.0 | -10.5 | 10 |
| 990.0 | -10.5 | 10 | 1010.0 | -10.5 | 10 | 1030.0 | -10.5 | 10 | 1050.0 | -10.5 | 10 | 1070.0 | -10.5 | 10 |
| 1090.0 | -10.5 | 10 | 1110.0 | -10.5 | 10 | 1130.0 | -10.5 | 10 | 1150.0 | -10.5 | 10 | 1170.0 | -10.5 | 10 |
| 1190.0 | -10.5 | 10 | 1210.0 | -10.5 | 10 | 1230.0 | -10.5 | 10 | 1250.0 | -10.5 | 10 | 1270.0 | -10.5 | 10 |
| 1290.0 | -10.5 | 10 | 1310.0 | -10.5 | 10 | 1330.0 | -10.5 | 10 | 1350.0 | -10.5 | 10 | 1370.0 | -10.5 | 10 |
| 1390.0 | -10.5 | 10 | 290.0 | 10.5 | 10 | 310.0 | 10.5 | 10 | 330.0 | 10.5 | 10 | 350.0 | 10.5 | 10 |
| 370.0 | 10.5 | 10 | 390.0 | 10.5 | 10 | 410.0 | 10.5 | 10 | 430.0 | 10.5 | 10 | 450.0 | 10.5 | 10 |
| 470.0 | 10.5 | 10 | 490.0 | 10.5 | 10 | 510.0 | 10.5 | 10 | 530.0 | 10.5 | 10 | 550.0 | 10.5 | 10 |
| 570.0 | 10.5 | 10 | 590.0 | 10.5 | 10 | 610.0 | 10.5 | 10 | 630.0 | 10.5 | 10 | 650.0 | 10.5 | 10 |
| 670.0 | 10.5 | 10 | 690.0 | 10.5 | 10 | 710.0 | 10.5 | 10 | 730.0 | 10.5 | 10 | 750.0 | 10.5 | 10 |
| 770.0 | 10.5 | 10 | 790.0 | 10.5 | 10 | 810.0 | 10.5 | 10 | 830.0 | 10.5 | 10 | 850.0 | 10.5 | 10 |
| 870.0 | 10.5 | 10 | 890.0 | 10.5 | 10 | 910.0 | 10.5 | 10 | 930.0 | 10.5 | 10 | 950.0 | 10.5 | 10 |
| 970.0 | 10.5 | 10 | 990.0 | 10.5 | 10 | 1010.0 | 10.5 | 10 | 1030.0 | 10.5 | 10 | 1050.0 | 10.5 | 10 |
| 1070.0 | 10.5 | 10 | 1090.0 | 10.5 | 10 | 1110.0 | 10.5 | 10 | 1130.0 | 10.5 | 10 | 1150.0 | 10.5 | 10 |
| 1170.0 | 10.5 | 10 | 1190.0 | 10.5 | 10 | 1210.0 | 10.5 | 10 | 1230.0 | 10.5 | 10 | 1250.0 | 10.5 | 10 |
| 1270.0 | 10.5 | 10 | 1290.0 | 10.5 | 10 | 1310.0 | 10.5 | 10 | 1330.0 | 10.5 | 10 | 1350.0 | 10.5 | 10 |
| 1370.0 | 10.5 | 10 | 1390.0 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 165

Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 72.5 |
| 305.0 | 72.5 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 72.5 |
| 1340.0 | 72.5 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -72.5 |
| 1305.0 | -72.5 |
| 1305.0 | -17.5 |
| 1125.0 | -17.5 |
| 1125.0 | -72.5 |
| 1090.0 | -72.5 |
| 1090.0 | -17.5 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|-------|-------|----|
| 290.0 | -10.5 | 10 | 310.0 | -10.5 | 10 | 330.0 | -10.5 | 10 | 350.0 | -10.5 | 10 | 370.0 | -10.5 | 10 |
| 390.0 | -10.5 | 10 | 410.0 | -10.5 | 10 | 430.0 | -10.5 | 10 | 450.0 | -10.5 | 10 | 470.0 | -10.5 | 10 |
| 490.0 | -10.5 | 10 | 510.0 | -10.5 | 10 | 530.0 | -10.5 | 10 | 550.0 | -10.5 | 10 | 570.0 | -10.5 | 10 |

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 590.0 | -10.5 | 10 | 610.0 | -10.5 | 10 | 630.0 | -10.5 | 10 | 650.0 | -10.5 | 10 | 670.0 | -10.5 | 10 |
| 690.0 | -10.5 | 10 | 710.0 | -10.5 | 10 | 730.0 | -10.5 | 10 | 750.0 | -10.5 | 10 | 770.0 | -10.5 | 10 |
| 790.0 | -10.5 | 10 | 810.0 | -10.5 | 10 | 830.0 | -10.5 | 10 | 850.0 | -10.5 | 10 | 870.0 | -10.5 | 10 |
| 890.0 | -10.5 | 10 | 910.0 | -10.5 | 10 | 930.0 | -10.5 | 10 | 950.0 | -10.5 | 10 | 970.0 | -10.5 | 10 |
| 990.0 | -10.5 | 10 | 1010.0 | -10.5 | 10 | 1030.0 | -10.5 | 10 | 1050.0 | -10.5 | 10 | 1070.0 | -10.5 | 10 |
| 1090.0 | -10.5 | 10 | 1110.0 | -10.5 | 10 | 1130.0 | -10.5 | 10 | 1150.0 | -10.5 | 10 | 1170.0 | -10.5 | 10 |
| 1190.0 | -10.5 | 10 | 1210.0 | -10.5 | 10 | 1230.0 | -10.5 | 10 | 1250.0 | -10.5 | 10 | 1270.0 | -10.5 | 10 |
| 1290.0 | -10.5 | 10 | 1310.0 | -10.5 | 10 | 1330.0 | -10.5 | 10 | 1350.0 | -10.5 | 10 | 1370.0 | -10.5 | 10 |
| 1390.0 | -10.5 | 10 | 290.0 | 10.5 | 10 | 310.0 | 10.5 | 10 | 330.0 | 10.5 | 10 | 350.0 | 10.5 | 10 |
| 370.0 | 10.5 | 10 | 390.0 | 10.5 | 10 | 410.0 | 10.5 | 10 | 430.0 | 10.5 | 10 | 450.0 | 10.5 | 10 |
| 470.0 | 10.5 | 10 | 490.0 | 10.5 | 10 | 510.0 | 10.5 | 10 | 530.0 | 10.5 | 10 | 550.0 | 10.5 | 10 |
| 570.0 | 10.5 | 10 | 590.0 | 10.5 | 10 | 610.0 | 10.5 | 10 | 630.0 | 10.5 | 10 | 650.0 | 10.5 | 10 |
| 670.0 | 10.5 | 10 | 690.0 | 10.5 | 10 | 710.0 | 10.5 | 10 | 730.0 | 10.5 | 10 | 750.0 | 10.5 | 10 |
| 770.0 | 10.5 | 10 | 790.0 | 10.5 | 10 | 810.0 | 10.5 | 10 | 830.0 | 10.5 | 10 | 850.0 | 10.5 | 10 |
| 870.0 | 10.5 | 10 | 890.0 | 10.5 | 10 | 910.0 | 10.5 | 10 | 930.0 | 10.5 | 10 | 950.0 | 10.5 | 10 |
| 970.0 | 10.5 | 10 | 990.0 | 10.5 | 10 | 1010.0 | 10.5 | 10 | 1030.0 | 10.5 | 10 | 1050.0 | 10.5 | 10 |
| 1070.0 | 10.5 | 10 | 1090.0 | 10.5 | 10 | 1110.0 | 10.5 | 10 | 1130.0 | 10.5 | 10 | 1150.0 | 10.5 | 10 |
| 1170.0 | 10.5 | 10 | 1190.0 | 10.5 | 10 | 1210.0 | 10.5 | 10 | 1230.0 | 10.5 | 10 | 1250.0 | 10.5 | 10 |
| 1270.0 | 10.5 | 10 | 1290.0 | 10.5 | 10 | 1310.0 | 10.5 | 10 | 1330.0 | 10.5 | 10 | 1350.0 | 10.5 | 10 |
| 1370.0 | 10.5 | 10 | 1390.0 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 300
Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 38.8 |
| 305.0 | 38.8 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 38.8 |
| 1340.0 | 38.8 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -38.8 |
| 1305.0 | -38.8 |
| 1305.0 | -17.5 |
| 1125.0 | -17.5 |
| 1125.0 | -38.8 |
| 1090.0 | -38.8 |
| 1090.0 | -17.5 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 290.0 | -10.5 | 10 | 310.0 | -10.5 | 10 | 330.0 | -10.5 | 10 | 350.0 | -10.5 | 10 | 370.0 | -10.5 | 10 |
| 390.0 | -10.5 | 10 | 410.0 | -10.5 | 10 | 430.0 | -10.5 | 10 | 450.0 | -10.5 | 10 | 470.0 | -10.5 | 10 |
| 490.0 | -10.5 | 10 | 510.0 | -10.5 | 10 | 530.0 | -10.5 | 10 | 550.0 | -10.5 | 10 | 570.0 | -10.5 | 10 |
| 590.0 | -10.5 | 10 | 610.0 | -10.5 | 10 | 630.0 | -10.5 | 10 | 650.0 | -10.5 | 10 | 670.0 | -10.5 | 10 |
| 690.0 | -10.5 | 10 | 710.0 | -10.5 | 10 | 730.0 | -10.5 | 10 | 750.0 | -10.5 | 10 | 770.0 | -10.5 | 10 |
| 790.0 | -10.5 | 10 | 810.0 | -10.5 | 10 | 830.0 | -10.5 | 10 | 850.0 | -10.5 | 10 | 870.0 | -10.5 | 10 |
| 890.0 | -10.5 | 10 | 910.0 | -10.5 | 10 | 930.0 | -10.5 | 10 | 950.0 | -10.5 | 10 | 970.0 | -10.5 | 10 |
| 990.0 | -10.5 | 10 | 1010.0 | -10.5 | 10 | 1030.0 | -10.5 | 10 | 1050.0 | -10.5 | 10 | 1070.0 | -10.5 | 10 |
| 1090.0 | -10.5 | 10 | 1110.0 | -10.5 | 10 | 1130.0 | -10.5 | 10 | 1150.0 | -10.5 | 10 | 1170.0 | -10.5 | 10 |
| 1190.0 | -10.5 | 10 | 1210.0 | -10.5 | 10 | 1230.0 | -10.5 | 10 | 1250.0 | -10.5 | 10 | 1270.0 | -10.5 | 10 |
| 1290.0 | -10.5 | 10 | 1310.0 | -10.5 | 10 | 1330.0 | -10.5 | 10 | 1350.0 | -10.5 | 10 | 1370.0 | -10.5 | 10 |
| 1390.0 | -10.5 | 10 | 290.0 | 10.5 | 10 | 310.0 | 10.5 | 10 | 330.0 | 10.5 | 10 | 350.0 | 10.5 | 10 |
| 370.0 | 10.5 | 10 | 390.0 | 10.5 | 10 | 410.0 | 10.5 | 10 | 430.0 | 10.5 | 10 | 450.0 | 10.5 | 10 |
| 470.0 | 10.5 | 10 | 490.0 | 10.5 | 10 | 510.0 | 10.5 | 10 | 530.0 | 10.5 | 10 | 550.0 | 10.5 | 10 |
| 570.0 | 10.5 | 10 | 590.0 | 10.5 | 10 | 610.0 | 10.5 | 10 | 630.0 | 10.5 | 10 | 650.0 | 10.5 | 10 |
| 670.0 | 10.5 | 10 | 690.0 | 10.5 | 10 | 710.0 | 10.5 | 10 | 730.0 | 10.5 | 10 | 750.0 | 10.5 | 10 |
| 770.0 | 10.5 | 10 | 790.0 | 10.5 | 10 | 810.0 | 10.5 | 10 | 830.0 | 10.5 | 10 | 850.0 | 10.5 | 10 |
| 870.0 | 10.5 | 10 | 890.0 | 10.5 | 10 | 910.0 | 10.5 | 10 | 930.0 | 10.5 | 10 | 950.0 | 10.5 | 10 |
| 970.0 | 10.5 | 10 | 990.0 | 10.5 | 10 | 1010.0 | 10.5 | 10 | 1030.0 | 10.5 | 10 | 1050.0 | 10.5 | 10 |
| 1070.0 | 10.5 | 10 | 1090.0 | 10.5 | 10 | 1110.0 | 10.5 | 10 | 1130.0 | 10.5 | 10 | 1150.0 | 10.5 | 10 |
| 1170.0 | 10.5 | 10 | 1190.0 | 10.5 | 10 | 1210.0 | 10.5 | 10 | 1230.0 | 10.5 | 10 | 1250.0 | 10.5 | 10 |
| 1270.0 | 10.5 | 10 | 1290.0 | 10.5 | 10 | 1310.0 | 10.5 | 10 | 1330.0 | 10.5 | 10 | 1350.0 | 10.5 | 10 |
| 1370.0 | 10.5 | 10 | 1390.0 | 10.5 | 10 | | | | | | | | | |

Sezione a quota 435
Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | -17.5 |
| 270.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 290.0 | -10.5 | 10 | 310.0 | -10.5 | 10 | 330.0 | -10.5 | 10 | 350.0 | -10.5 | 10 | 370.0 | -10.5 | 10 |
| 390.0 | -10.5 | 10 | 410.0 | -10.5 | 10 | 430.0 | -10.5 | 10 | 450.0 | -10.5 | 10 | 470.0 | -10.5 | 10 |
| 490.0 | -10.5 | 10 | 510.0 | -10.5 | 10 | 530.0 | -10.5 | 10 | 550.0 | -10.5 | 10 | 570.0 | -10.5 | 10 |
| 590.0 | -10.5 | 10 | 610.0 | -10.5 | 10 | 630.0 | -10.5 | 10 | 650.0 | -10.5 | 10 | 670.0 | -10.5 | 10 |
| 690.0 | -10.5 | 10 | 710.0 | -10.5 | 10 | 730.0 | -10.5 | 10 | 750.0 | -10.5 | 10 | 770.0 | -10.5 | 10 |
| 790.0 | -10.5 | 10 | 810.0 | -10.5 | 10 | 830.0 | -10.5 | 10 | 850.0 | -10.5 | 10 | 870.0 | -10.5 | 10 |
| 890.0 | -10.5 | 10 | 910.0 | -10.5 | 10 | 930.0 | -10.5 | 10 | 950.0 | -10.5 | 10 | 970.0 | -10.5 | 10 |
| 990.0 | -10.5 | 10 | 1010.0 | -10.5 | 10 | 1030.0 | -10.5 | 10 | 1050.0 | -10.5 | 10 | 1070.0 | -10.5 | 10 |
| 1090.0 | -10.5 | 10 | 1110.0 | -10.5 | 10 | 1130.0 | -10.5 | 10 | 1150.0 | -10.5 | 10 | 1170.0 | -10.5 | 10 |
| 1190.0 | -10.5 | 10 | 1210.0 | -10.5 | 10 | 1230.0 | -10.5 | 10 | 1250.0 | -10.5 | 10 | 1270.0 | -10.5 | 10 |
| 1290.0 | -10.5 | 10 | 1310.0 | -10.5 | 10 | 1330.0 | -10.5 | 10 | 1350.0 | -10.5 | 10 | 1370.0 | -10.5 | 10 |
| 1390.0 | -10.5 | 10 | 290.0 | 10.5 | 10 | 310.0 | 10.5 | 10 | 330.0 | 10.5 | 10 | 350.0 | 10.5 | 10 |
| 370.0 | 10.5 | 10 | 390.0 | 10.5 | 10 | 410.0 | 10.5 | 10 | 430.0 | 10.5 | 10 | 450.0 | 10.5 | 10 |
| 470.0 | 10.5 | 10 | 490.0 | 10.5 | 10 | 510.0 | 10.5 | 10 | 530.0 | 10.5 | 10 | 550.0 | 10.5 | 10 |
| 570.0 | 10.5 | 10 | 590.0 | 10.5 | 10 | 610.0 | 10.5 | 10 | 630.0 | 10.5 | 10 | 650.0 | 10.5 | 10 |
| 670.0 | 10.5 | 10 | 690.0 | 10.5 | 10 | 710.0 | 10.5 | 10 | 730.0 | 10.5 | 10 | 750.0 | 10.5 | 10 |
| 770.0 | 10.5 | 10 | 790.0 | 10.5 | 10 | 810.0 | 10.5 | 10 | 830.0 | 10.5 | 10 | 850.0 | 10.5 | 10 |
| 870.0 | 10.5 | 10 | 890.0 | 10.5 | 10 | 910.0 | 10.5 | 10 | 930.0 | 10.5 | 10 | 950.0 | 10.5 | 10 |
| 970.0 | 10.5 | 10 | 990.0 | 10.5 | 10 | 1010.0 | 10.5 | 10 | 1030.0 | 10.5 | 10 | 1050.0 | 10.5 | 10 |
| 1070.0 | 10.5 | 10 | 1090.0 | 10.5 | 10 | 1110.0 | 10.5 | 10 | 1130.0 | 10.5 | 10 | 1150.0 | 10.5 | 10 |
| 1170.0 | 10.5 | 10 | 1190.0 | 10.5 | 10 | 1210.0 | 10.5 | 10 | 1230.0 | 10.5 | 10 | 1250.0 | 10.5 | 10 |
| 1270.0 | 10.5 | 10 | 1290.0 | 10.5 | 10 | 1310.0 | 10.5 | 10 | 1330.0 | 10.5 | 10 | 1350.0 | 10.5 | 10 |
| 1370.0 | 10.5 | 10 | 1390.0 | 10.5 | 10 | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| fcd | ftcd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
|-----|------|-----|-------|-----|------|------|-----|
| 188 | 14 | 283 | 243 | 495 | 1128 | 2 | 243 |

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|----------|----------|--------|--------|--------|----------------|
| 0 | -610791 | -3127336 | -88821 | -88821 | -88821 | 53.5181 2 SLU |
| 0 | -1820587 | -2427444 | -81573 | -72698 | -81573 | 8.1278 16 SLV |
| 68 | 508141 | -4730993 | -72328 | -72328 | -72328 | 90.2055 3 SLU |
| 68 | 1110738 | -1595923 | -50414 | -51627 | -50414 | 60.1659 5 SLV |
| 135 | 1212474 | -5743811 | -62957 | -62957 | -62957 | 36.0916 2 SLU |
| 135 | 1192765 | -2564287 | -43965 | -44875 | -43965 | 36.3528 5 SLV |
| 165 | 1368917 | -5559067 | -60749 | -60749 | -60749 | 26.8794 2 SLU |
| 165 | 1198386 | -2904132 | -43478 | -48941 | -43478 | 30.4877 1 SLV |
| 300 | 914830 | -4233222 | -30092 | -30092 | -30092 | 13.4325 2 SLU |
| 300 | 1050117 | -5144091 | -28166 | -23933 | -28166 | 10.5276 16 SLV |
| 435 | -8880 | -751723 | -1157 | -1157 | -1157 | 520.3981 2 SLU |
| 435 | 203049 | 1281511 | 5615 | -459 | 5615 | 17.7708 4 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|--------|-------------------|-----------------|
| 0 | -81964 | -3206733 | 39.1237 13 SLV |
| 68 | -67444 | -3805937 | 56.4315 13 SLV |
| 135 | -59451 | -3628151 | 61.0280 13 SLV |
| 165 | -55273 | -3549135 | 64.2107 13 SLV |
| 300 | -28690 | -3193563 | 111.3146 13 SLV |
| 435 | -6533 | -2969685 | 454.5582 13 SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrzd comb |
|-------|---------|-------|----------------|
| 0 | 1.00 | 32653 | 1502607 2 SLU |
| 0 | 1.00 | 53926 | 1499094 10 SLV |
| 68 | 1.00 | 27912 | 1499293 2 SLU |
| 68 | 1.00 | 49625 | 1496568 10 SLV |
| 135 | 1.00 | 24849 | 1497434 2 SLU |
| 135 | 1.00 | 46894 | 1495152 10 SLV |
| 165 | 1.00 | 22220 | 1496992 2 SLU |
| 165 | 1.00 | 42804 | 1494683 10 SLV |
| 300 | 1.00 | 14542 | 1490926 1 SLU |
| 300 | 1.00 | 31214 | 1489778 10 SLV |
| 435 | 1.00 | 20167 | 1485098 1 SLU |
| 435 | 1.00 | 20439 | 1485400 10 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd comb |
|-------|------|--------|--------|-------|--------|---------------|
| 0 | 88.0 | 0.0071 | 0.0022 | 32653 | -88821 | 877290 2 SLU |
| 0 | 88.0 | 0.0071 | 0.0022 | 53926 | -71256 | 877290 10 SLV |
| 68 | 88.0 | 0.0080 | 0.0022 | 27912 | -72251 | 987014 2 SLU |
| 68 | 88.0 | 0.0080 | 0.0022 | 49625 | -58627 | 987014 10 SLV |
| 135 | 88.0 | 0.0080 | 0.0022 | 24849 | -62957 | 987014 2 SLU |
| 135 | 88.0 | 0.0080 | 0.0022 | 46894 | -51550 | 987014 10 SLV |
| 165 | 88.0 | 0.0080 | 0.0022 | 22220 | -60749 | 987014 2 SLU |
| 165 | 88.0 | 0.0080 | 0.0022 | 42804 | -49201 | 987014 10 SLV |
| 300 | 88.0 | 0.0080 | 0.0022 | 14542 | -30419 | 987014 1 SLU |
| 300 | 88.0 | 0.0080 | 0.0022 | 31214 | -24679 | 987014 10 SLV |
| 435 | 88.0 | 0.0068 | 0.0022 | 20167 | -1276 | 845977 1 SLU |
| 435 | 88.0 | 0.0068 | 0.0022 | 20439 | -2788 | 845977 10 SLV |

Pannello P10

Parete fra le coordinate in pianta (1385;330) (0;330)
da quota -40 a quota 165
Valori in daN, cm
c32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | |
|---------|---|-----|-----|-----|-----|-----|------|--------|--------|------|--------|--------|---------|
| 402 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | 8.313 | 10 SLV | -29 | -31475 | -241 | 261651 |
| | v | 70 | 30 | 2.7 | 2.7 | 6.0 | 6.0 | 7.296 | 1 SLV | 1168 | 24812 | 8522 | -181027 |
| 2582 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | 56.253 | 3 SLV | -667 | 12433 | -37494 | -699373 |
| | v | 100 | 30 | 3.9 | 3.9 | 6.0 | 6.0 | 6.139 | 1 SLV | 588 | 60075 | 3610 | -368780 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c | |
|---------|---|-----|-----|-----|-----|-----|-----|------|------|----------|----------|-------|------|----------|----------|------|---------|-----|------|
| 402 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | -3.3 | 1 ra | -2.46E00 | -1.01E04 | 193.1 | 1 ra | -2.46E00 | -1.01E04 | 0.00 | 1.0 | 0.0 | 1 ra |
| | v | 70 | 30 | 2.7 | 2.7 | 6.0 | 6.0 | -4.4 | 1 ra | 1.97E02 | 1.57E04 | 291.6 | 1 ra | 1.97E02 | 1.57E04 | 0.00 | 1.6 | 0.0 | 1 ra |
| 2582 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | -1.4 | 1 ra | -1.64E03 | 6.05E03 | -8.8 | 1 ra | -1.34E03 | -1.09E03 | 0.00 | 0.0 | 0.0 | 1 ra |
| | v | 100 | 30 | 3.9 | 3.9 | 6.0 | 6.0 | -6.6 | 1 ra | -2.10E02 | 3.46E04 | 360.4 | 1 ra | -2.10E02 | 3.46E04 | 0.00 | 2.2 | 0.0 | 1 ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c | |
|---------|---|-----|-----|-----|-----|-----|-----|------|------|----------|----------|-------|------|----------|----------|------|---------|-----|------|
| 402 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | -3.3 | 3 fr | 9.42E01 | -1.01E04 | 216.3 | 3 fr | 9.42E01 | -1.01E04 | 0.00 | 1.0 | 0.0 | 1 fr |
| | v | 70 | 30 | 2.7 | 2.7 | 6.0 | 6.0 | -4.5 | 3 fr | 3.33E02 | 1.60E04 | 323.3 | 3 fr | 3.33E02 | 1.60E04 | 0.00 | 1.6 | 0.0 | 1 fr |
| 2582 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | -1.3 | 3 fr | -1.47E03 | 5.89E03 | -8.4 | 1 fr | -1.34E03 | -1.50E03 | 0.00 | 0.0 | 0.0 | 1 fr |
| | v | 100 | 30 | 3.9 | 3.9 | 6.0 | 6.0 | -6.7 | 3 fr | -6.21E01 | 3.51E04 | 386.2 | 3 fr | -6.21E01 | 3.51E04 | 0.00 | 2.3 | 0.0 | 1 fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk (mm) | st | Sm (mm) | c | |
|---------|---|-----|-----|-----|-----|-----|-----|------|------|----------|----------|-------|------|----------|----------|------|---------|-----|------|
| 402 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | -2.2 | 1 q. | 1.88E02 | -6.60E03 | 171.6 | 1 q. | 1.88E02 | -6.60E03 | 0.00 | 0.7 | 0.0 | 1 q. |
| | v | 70 | 30 | 2.7 | 2.7 | 6.0 | 6.0 | -3.6 | 1 q. | 2.27E02 | 1.28E04 | 250.4 | 1 q. | 2.27E02 | 1.28E04 | 0.00 | 1.3 | 0.0 | 1 q. |
| 2582 | o | 68 | 30 | 2.4 | 2.4 | 7.0 | 7.0 | -1.2 | 1 q. | -1.52E03 | 4.95E03 | -8.3 | 1 q. | -1.31E03 | -1.40E03 | 0.00 | 0.0 | 0.0 | 1 q. |
| | v | 100 | 30 | 3.9 | 3.9 | 6.0 | 6.0 | -5.0 | 1 q. | -2.75E02 | 2.64E04 | 259.2 | 1 q. | -2.75E02 | 2.64E04 | 0.00 | 1.6 | 0.0 | 1 q. |

Verifica dei pannelli

Pannello : Pannello da Filo 12 a Filo 2

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|---------|-------|
| -1385.0 | -15.0 |
| -1385.0 | 15.0 |
| 0.0 | 15.0 |
| 0.0 | -15.0 |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | | | | | | | | | | |
|--------|-----|----|--------|-----|----|--------|-----|----|--------|-----|----|--------|-----|----|
| -355.3 | 8.0 | 10 | -335.3 | 8.0 | 10 | -315.3 | 8.0 | 10 | -295.3 | 8.0 | 10 | -275.3 | 8.0 | 10 |
| -255.3 | 8.0 | 10 | -235.3 | 8.0 | 10 | -215.3 | 8.0 | 10 | -195.3 | 8.0 | 10 | -175.3 | 8.0 | 10 |
| -155.3 | 8.0 | 10 | -135.3 | 8.0 | 10 | -115.3 | 8.0 | 10 | -95.3 | 8.0 | 10 | -75.3 | 8.0 | 10 |
| -55.3 | 8.0 | 10 | -35.3 | 8.0 | 10 | -15.3 | 8.0 | 10 | | | | | | |

Verifica eseguita con comportamento non dissipativo
Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura

| | | | | | | | |
|-----|------|-----|-------|-----|------|------|-----|
| fcd | fctd | Hcr | q.Hcr | hw | Lw | n.p. | hs |
| 188 | 14 | 205 | 165 | 205 | 1385 | 1 | 190 |

Verifica a pressoflessione

| | | | | | | | |
|-------|--------|----------|---------|---------|---------|----------|-------|
| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. | comb |
| 0 | 304061 | -2457136 | -124143 | -124143 | -124143 | 52.0177 | 2 SLV |
| 0 | 517693 | -3116317 | -106506 | -91731 | -106506 | 47.7095 | 5 SLV |
| 68 | 128876 | -1768417 | -102404 | -102404 | -102404 | 65.2092 | 1 SLV |
| 68 | 241120 | -2056587 | -83117 | -73461 | -83117 | 74.0411 | 5 SLV |
| 135 | 19825 | -1357858 | -85541 | -85541 | -85541 | 78.0638 | 1 SLV |
| 135 | 34306 | -998772 | -63620 | -59522 | -63620 | 104.9618 | 5 SLV |

Controllo dello sforzo normale massimo

| | | | | |
|-------|---------|-------------------|---------|-------|
| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. | comb |
| 0 | -106506 | -3126776 | 29.3576 | 5 SLV |
| 68 | -83117 | -3126776 | 37.6192 | 5 SLV |
| 135 | -63620 | -3126776 | 49.1477 | 5 SLV |

Verifica compressione del diagonale

| | | | | |
|-------|---------|-------|---------|--------|
| quota | epsilon | VEd | Vrcd | comb |
| 0 | 1.00 | 25190 | 1588456 | 1 SLV |
| 0 | 1.00 | 57864 | 1579670 | 15 SLV |
| 68 | 1.00 | 24709 | 1583869 | 1 SLV |
| 68 | 1.00 | 56126 | 1576674 | 15 SLV |
| 135 | 1.00 | 25146 | 1579824 | 3 SLV |
| 135 | 1.00 | 54834 | 1574653 | 15 SLV |

Verifica trazione del diagonale

| | | | | | | | |
|-------|-------|--------|--------|-------|---------|--------|--------|
| quota | At | roh | rov | VEd | NEd | VRsd | comb |
| 0 | 108.4 | 0.0023 | 0.0026 | 25190 | -125341 | 302714 | 1 SLV |
| 0 | 108.4 | 0.0023 | 0.0026 | 57864 | -81410 | 302714 | 15 SLV |
| 68 | 108.4 | 0.0026 | 0.0026 | 24709 | -102404 | 340578 | 1 SLV |
| 68 | 108.4 | 0.0026 | 0.0026 | 56126 | -66429 | 340578 | 15 SLV |
| 135 | 108.4 | 0.0020 | 0.0026 | 25146 | -82181 | 255418 | 3 SLV |
| 135 | 108.4 | 0.0020 | 0.0026 | 54834 | -56326 | 255418 | 15 SLV |

Pannello P11

Parete fra le coordinate in pianta (3633;1090) (3633;1393)
da quota -40 a quota 455
Valori in daN, cm
C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| | | | | | | | | | | | | | |
|---------|---|-----|-----|-----|-----|-----|------|-------|--------|--------|---------|--------|--------|
| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | |
| 4507 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | 5.566 | 13 SLV | 508 | -61934 | 2825 | 344728 |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | 1.053 | 13 SLV | -10007 | -605203 | -10533 | 637035 |
| 4808 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | 5.579 | 13 SLV | -315 | -73919 | -1755 | 412425 |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | 1.009 | 13 SLV | -11562 | -648310 | -11661 | 653887 |

Combinazione rara

| | | | | | | | | | | | | | | | | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|------|----------|----------|--------|------|----------|----------|------|--------|-----|------|
| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
| 4507 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | -8.2 | 1 ra | -4.38E02 | -4.05E04 | 413.9 | 1 ra | -4.38E02 | -4.05E04 | 0.00 | 2.7 | 0.0 | 1 ra |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | -49.7 | 1 ra | -7.75E03 | -3.71E05 | 2425.0 | 1 ra | -7.75E03 | -3.71E05 | 0.00 | 15.7 | 0.0 | 1 ra |
| 4808 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | -10.1 | 1 ra | -8.51E02 | -5.08E04 | 468.0 | 1 ra | -8.51E02 | -5.08E04 | 0.00 | 3.3 | 0.0 | 1 ra |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | -52.8 | 1 ra | -8.71E03 | -3.96E05 | 2529.2 | 1 ra | -8.71E03 | -3.96E05 | 0.00 | 16.6 | 0.0 | 1 ra |

Combinazione frequente

| | | | | | | | | | | | | | | | | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|------|----------|----------|--------|------|----------|----------|------|--------|-----|------|
| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
| 4507 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | -7.3 | 3 fr | -2.10E02 | -3.57E04 | 394.7 | 3 fr | -2.10E02 | -3.57E04 | 0.00 | 2.5 | 0.0 | 1 fr |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | -45.3 | 3 fr | -6.72E03 | -3.37E05 | 2243.7 | 3 fr | -6.72E03 | -3.37E05 | 0.00 | 14.3 | 0.0 | 1 fr |
| 4808 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | -8.8 | 3 fr | -6.31E02 | -4.38E04 | 421.0 | 3 fr | -6.31E02 | -4.38E04 | 0.00 | 2.9 | 0.0 | 1 fr |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | -48.3 | 3 fr | -7.57E03 | -3.61E05 | 2357.5 | 3 fr | -7.57E03 | -3.61E05 | 0.00 | 15.3 | 0.0 | 1 fr |

Combinazione quasi permanente

| | | | | | | | | | | | | | | | | | | | |
|---------|---|-----|-----|-----|-----|-----|-----|-------|------|----------|----------|--------|------|----------|----------|------|--------|-----|------|
| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
| 4507 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | -5.7 | 1 q. | -6.23E02 | -2.91E04 | 245.1 | 1 q. | -6.23E02 | -2.91E04 | 0.00 | 1.8 | 0.0 | 1 q. |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | -34.2 | 1 q. | -5.56E03 | -2.56E05 | 1649.4 | 1 q. | -5.56E03 | -2.56E05 | 0.00 | 10.8 | 0.0 | 1 q. |
| 4808 | o | 68 | 35 | 3.1 | 3.1 | 7.0 | 7.0 | -7.2 | 1 q. | -8.26E02 | -3.70E04 | 305.9 | 1 q. | -8.26E02 | -3.70E04 | 0.00 | 2.3 | 0.0 | 1 q. |
| | v | 100 | 35 | 3.9 | 3.9 | 6.0 | 6.0 | -36.1 | 1 q. | -6.22E03 | -2.72E05 | 1704.6 | 1 q. | -6.22E03 | -2.72E05 | 0.00 | 11.3 | 0.0 | 1 q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo
Verifica punto a coordinate x=3633 y=1323 z=403

| | | | | | | | | | | | | | | |
|-----|----|----|-----|-----|-----|-----|-------|--------|------|--------|------|---------|------|-------|
| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
| v | 84 | 35 | 3.1 | 3.1 | 6.0 | 6.0 | 1.629 | 14 SLV | 1008 | 216846 | 1642 | -353194 | 1298 | 12166 |

Combinazione rara
Verifica punto a coordinate x=3633 y=1323 z=403

| | | | | | | | | | | | | | | | | | | |
|-----|----|----|-----|-----|-----|-----|-------|------|---------|---------|--------|------|---------|---------|--------|-----|--------|------|
| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
| v | 84 | 35 | 3.1 | 3.1 | 6.0 | 6.0 | -21.1 | 1 ra | 6.14E02 | 1.07E05 | 1378.1 | 1 ra | 6.14E02 | 1.07E05 | 0.00 | 6.6 | 0.0 | 1 ra |

Combinazione frequente
Verifica punto a coordinate x=3633 y=1323 z=403

| | | | | | | | | | | | | | | | | | | |
|-----|----|----|-----|-----|-----|-----|-------|------|---------|---------|--------|------|---------|---------|--------|-----|--------|------|
| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
| v | 84 | 35 | 3.1 | 3.1 | 6.0 | 6.0 | -20.1 | 3 fr | 5.23E02 | 1.02E05 | 1298.9 | 3 fr | 5.23E02 | 1.02E05 | 0.00 | 6.3 | 0.0 | 3 fr |

Combinazione quasi permanente
Verifica punto a coordinate x=3633 y=1323 z=403

| | | | | | | | | | | | | | | | | | | |
|-----|----|----|-----|-----|-----|-----|-------|------|---------|---------|-------|------|---------|---------|--------|-----|--------|------|
| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
| v | 84 | 35 | 3.1 | 3.1 | 6.0 | 6.0 | -14.2 | 1 q. | 5.15E02 | 7.14E04 | 939.8 | 1 q. | 5.15E02 | 7.14E04 | 0.00 | 4.5 | 0.0 | 1 q. |

Pannello P12

Parete fra le coordinate in pianta (3420;1108) (3651;1108)
da quota -40 a quota 455
Valori in daN, cm

**Ampliamento e potenziamento dell'impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|---------|-------|----|-----|-----|-----|-----|-------|--------|--------|---------|--------|----------|
| 4503 | o 68 | 35 | 2.4 | 2.4 | 7.0 | 7.0 | 4.706 | 15 SLV | -3033 | 108200 | -14273 | -509213 |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.166 | 13 SLV | -12289 | 1099367 | -14330 | -1281914 |
| 4805 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | 2.467 | 1 SLU | -6453 | 294195 | -15922 | -725867 |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | 1.247 | 15 SLV | -5399 | 949217 | -6733 | -1183767 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|--------|------|--------|------|
| 4503 | o 68 | 35 | 2.4 | 2.4 | 7.0 | 7.0 | -12.8 | 1 ra | -3.74E03 | 7.17E04 | 335.6 | 1 ra | -3.74E03 | 7.17E04 | 0.00 | 3.6 | 0.0 | 1 ra |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -53.3 | 1 ra | -6.29E03 | 5.24E05 | 1936.1 | 1 ra | -6.29E03 | 5.24E05 | 0.00 | 23.0 | 0.0 | 1 ra |
| 4805 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -30.1 | 1 ra | -4.70E03 | 2.14E05 | 1402.8 | 1 ra | -4.70E03 | 2.14E05 | 0.00 | 9.0 | 0.0 | 1 ra |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -61.6 | 1 ra | -3.72E03 | 6.01E05 | 2420.1 | 1 ra | -3.72E03 | 6.01E05 | 0.00 | 27.4 | 0.0 | 1 ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|--------|------|--------|------|
| 4503 | o 68 | 35 | 2.4 | 2.4 | 7.0 | 7.0 | -10.9 | 3 fr | -3.40E03 | 6.23E04 | 265.4 | 3 fr | -3.40E03 | 6.23E04 | 0.00 | 3.0 | 0.0 | 1 fr |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -51.2 | 3 fr | -5.77E03 | 5.03E05 | 1875.0 | 3 fr | -5.77E03 | 5.03E05 | 0.00 | 22.2 | 0.0 | 1 fr |
| 4805 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -24.6 | 1 fr | -3.92E03 | 1.75E05 | 1141.9 | 1 fr | -3.92E03 | 1.75E05 | 0.00 | 7.3 | 0.0 | 1 fr |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -54.3 | 3 fr | -3.42E03 | 5.30E05 | 2125.9 | 3 fr | -3.42E03 | 5.30E05 | 0.00 | 24.1 | 0.0 | 1 fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---------|-------|----|-----|-----|-----|-----|-------|------|----------|---------|--------|------|----------|---------|--------|------|--------|------|
| 4503 | o 68 | 35 | 2.4 | 2.4 | 7.0 | 7.0 | -8.2 | 1 q. | -2.77E03 | 4.85E04 | 186.0 | 1 q. | -2.77E03 | 4.85E04 | 0.00 | 2.3 | 0.0 | 1 q. |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -33.0 | 1 q. | -3.75E03 | 3.24E05 | 1206.5 | 1 q. | -3.75E03 | 3.24E05 | 0.00 | 14.3 | 0.0 | 1 q. |
| 4805 | o 100 | 35 | 3.9 | 3.9 | 7.0 | 7.0 | -23.1 | 1 q. | -3.70E03 | 1.64E05 | 1068.8 | 1 q. | -3.70E03 | 1.64E05 | 0.00 | 6.9 | 0.0 | 1 q. |
| | v 100 | 35 | 9.6 | 9.6 | 7.2 | 7.2 | -42.8 | 1 q. | -2.10E03 | 4.17E05 | 1706.5 | 1 q. | -2.10E03 | 4.17E05 | 0.00 | 19.1 | 0.0 | 1 q. |

Parete P7

Parete fra le coordinate in pianta (2403;270) (2403;1398)
da quota -40 a quota 455
Valori in daN, cm
C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu |
|---------|-------|----|------|------|-----|-----|--------|--------|--------|---------|--------|----------|
| 809 | o 100 | 35 | 14.0 | 14.0 | 7.2 | 7.2 | 1.034 | 13 SLV | -13518 | 1626096 | -13975 | -1681082 |
| | v 70 | 35 | 3.9 | 3.9 | 6.9 | 6.9 | 2.354 | 16 SLV | 1033 | 184650 | 2430 | -434614 |
| 3991 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | 22.026 | 2 SLV | -2972 | 94237 | -65452 | -2075678 |
| | v 100 | 35 | 11.6 | 11.6 | 7.5 | 7.5 | 1.000 | 15 SLV | 23060 | 997710 | 23061 | -997749 |
| 4991 | o 68 | 35 | 12.4 | 12.4 | 7.1 | 7.1 | 4.498 | 14 SLV | 1121 | 272159 | 5042 | -1224175 |
| | v 100 | 35 | 24.3 | 24.3 | 7.9 | 7.9 | 1.064 | 16 SLV | 40486 | 1793241 | 43075 | -1907909 |
| 5476 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | 3.110 | 13 SLV | -1771 | 659176 | -5507 | -2050192 |
| | v 50 | 35 | 17.7 | 17.7 | 8.0 | 8.0 | 1.198 | 13 SLV | 21981 | 1119179 | 26336 | -1340924 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---------|-------|----|------|------|-----|-----|-------|------|----------|---------|--------|------|----------|---------|--------|------|--------|------|
| 809 | o 100 | 35 | 14.0 | 14.0 | 7.2 | 7.2 | -81.2 | 1 ra | -1.15E04 | 9.33E05 | 2313.8 | 1 ra | -1.15E04 | 9.33E05 | 0.12 | 0.0 | 176.2 | 1 ra |
| | v 70 | 35 | 3.9 | 3.9 | 6.9 | 6.9 | -19.5 | 1 ra | -1.44E03 | 1.10E05 | 1114.6 | 1 ra | 4.26E02 | 1.04E05 | 0.00 | 7.3 | 0.0 | 1 ra |
| 3991 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | -3.3 | 1 ra | -2.58E03 | 4.03E04 | 36.8 | 1 ra | -2.58E03 | 4.03E04 | 0.00 | 1.2 | 0.0 | 1 ra |
| | v 100 | 35 | 11.6 | 11.6 | 7.5 | 7.5 | -54.2 | 1 ra | 1.42E04 | 5.67E05 | 2807.0 | 1 ra | 1.42E04 | 5.67E05 | 0.00 | 30.5 | 0.0 | 1 ra |
| 4991 | o 68 | 35 | 12.4 | 12.4 | 7.1 | 7.1 | -15.1 | 1 ra | -7.70E02 | 1.32E05 | 463.9 | 1 ra | 4.80E02 | 1.32E05 | 0.00 | 9.1 | 0.0 | 1 ra |
| | v 100 | 35 | 24.3 | 24.3 | 7.9 | 7.9 | -64.6 | 1 ra | 2.29E04 | 9.14E05 | 2348.1 | 1 ra | 2.29E04 | 9.14E05 | 0.10 | 0.0 | 115.9 | 1 ra |
| 5476 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | -26.1 | 1 ra | -1.72E03 | 3.47E05 | 705.0 | 1 ra | -1.72E03 | 3.47E05 | 0.00 | 15.4 | 0.0 | 1 ra |
| | v 50 | 35 | 17.7 | 17.7 | 8.0 | 8.0 | -68.8 | 1 ra | 1.18E04 | 5.79E05 | 2043.2 | 1 ra | 1.28E04 | 5.76E05 | 0.06 | 0.0 | 73.0 | 1 ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---------|-------|----|------|------|-----|-----|-------|------|----------|---------|--------|------|----------|---------|--------|------|--------|------|
| 809 | o 100 | 35 | 14.0 | 14.0 | 7.2 | 7.2 | -73.1 | 3 fr | -1.12E04 | 8.40E05 | 2053.4 | 3 fr | -1.12E04 | 8.40E05 | 0.10 | 0.0 | 175.6 | 3 fr |
| | v 70 | 35 | 3.9 | 3.9 | 6.9 | 6.9 | -17.5 | 3 fr | -1.37E03 | 9.89E04 | 1000.4 | 3 fr | 3.68E02 | 9.36E04 | 0.00 | 6.6 | 0.0 | 1 fr |
| 3991 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | -3.0 | 3 fr | -2.27E03 | 3.64E04 | 35.2 | 3 fr | -2.27E03 | 3.64E04 | 0.00 | 1.1 | 0.0 | 1 fr |
| | v 100 | 35 | 11.6 | 11.6 | 7.5 | 7.5 | -48.7 | 3 fr | 1.34E04 | 5.10E05 | 2553.6 | 3 fr | 1.34E04 | 5.10E05 | 0.00 | 27.6 | 0.0 | 1 fr |
| 4991 | o 68 | 35 | 12.4 | 12.4 | 7.1 | 7.1 | -13.6 | 3 fr | -7.70E02 | 1.19E05 | 417.2 | 3 fr | 4.23E02 | 1.19E05 | 0.00 | 8.2 | 0.0 | 1 fr |
| | v 100 | 35 | 24.3 | 24.3 | 7.9 | 7.9 | -58.1 | 3 fr | 2.10E04 | 8.22E05 | 2120.3 | 3 fr | 2.10E04 | 8.22E05 | 0.09 | 0.0 | 116.0 | 3 fr |
| 5476 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | -23.4 | 3 fr | -1.57E03 | 3.11E05 | 632.1 | 3 fr | -1.57E03 | 3.11E05 | 0.00 | 13.8 | 0.0 | 1 fr |
| | v 50 | 35 | 17.7 | 17.7 | 8.0 | 8.0 | -61.8 | 3 fr | 1.08E04 | 5.20E05 | 1844.4 | 3 fr | 1.17E04 | 5.18E05 | 0.05 | 0.0 | 73.1 | 3 fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---------|-------|----|------|------|-----|-----|-------|------|----------|---------|--------|------|----------|---------|--------|------|--------|------|
| 809 | o 100 | 35 | 14.0 | 14.0 | 7.2 | 7.2 | -48.4 | 1 q. | -1.04E04 | 5.59E05 | 1257.5 | 1 q. | -1.04E04 | 5.59E05 | 0.00 | 23.2 | 0.0 | 1 q. |
| | v 70 | 35 | 3.9 | 3.9 | 6.9 | 6.9 | -11.6 | 1 q. | -1.39E03 | 6.65E04 | 659.9 | 1 q. | 1.56E02 | 6.29E04 | 0.00 | 4.4 | 0.0 | 1 q. |
| 3991 | o 100 | 35 | 11.6 | 11.6 | 7.1 | 7.1 | -1.9 | 1 q. | -2.08E03 | 2.46E04 | 10.4 | 1 q. | -2.08E03 | 2.46E04 | 0.00 | 0.6 | 0.0 | 1 q. |
| | v 100 | 35 | 11.6 | 11.6 | 7.5 | 7.5 | -32.2 | 1 q. | 9.04E03 | 3.37E05 | 1699.3 | 1 q. | 9.04E03 | 3.37E05 | 0.00 | 18.3 | 0.0 | 1 q. |
| 4991 | o 68 | 35 | 12.4 | 12.4 | 7.1 | 7.1 | -9.1 | 1 q. | -8.29E02 | 7.96E04 | 275.5 | 1 q. | 1.96E02 | 7.95E04 | 0.00 | 5.5 | 0.0 | 1 q. |
| | v 100 | 35 | 24.3 | 24.3 | 7.9 | 7.9 | -39.2 | 1 q. | 1.42E04 | 5.54E05 | 1432.4 | 1 q. | 1.42E04 | 5.54E05 | 0.00 | 28.9 | 0.0 | 1 q. |
| 5476 | o 100 | 35 | 19.3 | 19.3 | 7.2 | 7.2 | -15.4 | 1 q. | -1.41E03 | 2.05E05 | 405.7 | 1 q. | -1.41E03 | 2.05E05 | 0.00 | 9.0 | 0.0 | 1 q. |
| | v 50 | 35 | 17.7 | 17.7 | 8.0 | 8.0 | -40.6 | 1 q. | 7.38E03 | 3.43E05 | 1223.3 | 1 q. | 7.99E03 | 3.41E05 | 0.03 | 0.0 | 73.3 | 1 q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo

| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
|---|----|------|------|-----|-----|----|-------|--------|-------|---------|-------|----------|------|-------|
| Verifica punto a coordinate x=2403 y=1323 z=303 | | | | | | | | | | | | | | |
| v 222 | 35 | 25.6 | 25.6 | 7.5 | 7.5 | | 3.833 | 15 SLV | 7319 | 627006 | 28054 | -2403194 | 1578 | 32664 |
| Verifica punto a coordinate x=2403 y=288 z=192 | | | | | | | | | | | | | | |
| v 284 | 35 | 43.3 | 43.3 | 7.7 | 7.7 | | 1.183 | 16 SLV | 62596 | 2965489 | 74065 | -3508822 | 667 | 45706 |

Combinazione rara

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---|----|------|------|-----|-----|----|-------|------|---------|---------|--------|------|---------|---------|--------|-----|--------|------|
| Verifica punto a coordinate x=2403 y=1323 z=303 | | | | | | | | | | | | | | | | | | |
| v 222 | 35 | 25.6 | 25.6 | 7.5 | 7.5 | | -18.2 | 1 ra | 4.16E03 | 3.49E05 | 726.0 | 1 ra | 4.16E03 | 3.49E05 | 0.00 | 8.6 | 0.0 | 1 ra |
| Verifica punto a coordinate x=2403 y=288 z=192 | | | | | | | | | | | | | | | | | | |
| v 284 | 35 | 43.3 | 43.3 | 7.7 | 7.7 | | -60.4 | 1 ra | 4.12E04 | 1.67E06 | 2452.5 | 1 ra | 4.12E04 | 1.67E06 | 0.09 | 0.0 | 106.9 | 1 ra |

Combinazione frequente

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|---|----|------|------|-----|----|----|----|---|---|---|----|---|---|---|--------|----|--------|---|
| Verifica punto a coordinate x=2403 y=1323 z=303 | | | | | | | | | | | | | | | | | | |
| v 222 | 35 | 25.6 | 25.6 | 7. | | | | | | | | | | | | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

v 284 35 43.3 43.3 7.7 7.7 -54.9 3 fr 3.95E04 1.50E06 2250.3 3 fr 3.95E04 1.50E06 0.00 28.8 0.0 3 fr

Combinazione quasi permanente

Verifica punto a coordinate x=2403 y=1323 z=303

sez B H Af+ Af- c+ c- sc c N M sf c N M Wk (mm) st Sm (mm) c

v 222 35 25.6 25.6 7.5 7.5 -10.9 1 q. 2.77E03 2.08E05 440.4 1 q. 2.77E03 2.08E05 0.00 5.1 0.0 1 q.

Verifica punto a coordinate x=2403 y=288 z=192

v 284 35 43.3 43.3 7.7 7.7 -37.4 1 q. 2.72E04 1.01E06 1531.3 1 q. 2.72E04 1.01E06 0.00 19.3 0.0 1 q.

Trave da quota 100 a quota 455

Rapporto l/h 0.28<3

SLU

Mx My N Mxu Myu Nu cs comb
-180805 -1831462 102846 -369953 -3747448 210439 2.046 2

SLV

Mx My N Mxu Myu Nu cs comb
793065 -2301553 107501 1402433 -4069998 190101 1.768 16

Verifica a taglio

VEd 38599.7 comb 2 SLU

fctd*b*d = 161720

Armatura a X non necessaria (7.4.4.6)

Resistenza dovuta all'armatura verticale Passo 11.8 Diametro 10 VEd = 38600 < Vrd,S = 150422

Verifica dei pannelli

Pannello : Pannello da Filo 15 a Filo 17

Sezione a quota 0

Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 40.0 |
| 305.0 | 40.0 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 40.0 |
| 1340.0 | 40.0 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -40.0 |
| 1305.0 | -40.0 |
| 1305.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -40.0 |
| 270.0 | -40.0 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 275.5 | -10.5 | 10 | 295.5 | -10.5 | 10 | 315.5 | -10.5 | 10 | 335.5 | -10.5 | 10 | 455.5 | -10.5 | 10 |
| 475.5 | -10.5 | 10 | 495.5 | -10.5 | 10 | 515.5 | -10.5 | 10 | 535.5 | -10.5 | 10 | 555.5 | -10.5 | 10 |
| 575.5 | -10.5 | 10 | 595.5 | -10.5 | 10 | 615.5 | -10.5 | 10 | 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 |
| 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 | 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 |
| 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 | 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 |
| 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 |
| 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 |
| 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 |
| 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 |
| 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 |
| 1375.5 | -10.5 | 10 | 275.5 | 10.5 | 10 | 295.5 | 10.5 | 10 | 315.5 | 10.5 | 10 | 335.5 | 10.5 | 10 |
| 455.5 | 10.5 | 10 | 475.5 | 10.5 | 10 | 495.5 | 10.5 | 10 | 515.5 | 10.5 | 10 | 535.5 | 10.5 | 10 |
| 555.5 | 10.5 | 10 | 575.5 | 10.5 | 10 | 595.5 | 10.5 | 10 | 615.5 | 10.5 | 10 | 635.5 | 10.5 | 10 |
| 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 |
| 755.5 | 10.5 | 10 | 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 |
| 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 |
| 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 |
| 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 |
| 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 |
| 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 |
| 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 | 283.8 | -10.3 | 14 | 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 |
| 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 | 323.8 | 10.3 | 14 | 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 |
| 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 | 383.8 | -10.3 | 14 | 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 |
| 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 | 423.8 | 10.3 | 14 | 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 |
| 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 | 483.8 | -10.3 | 14 | 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 |
| 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 | 523.8 | 10.3 | 14 | 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 |
| 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 | 583.8 | -10.3 | 14 | 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 |
| 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 | 623.8 | 10.3 | 14 | 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 |
| 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 | 683.8 | -10.3 | 14 | 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 |
| 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 | 723.8 | 10.3 | 14 | 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 |
| 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 | 783.8 | -10.3 | 14 | 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 |
| 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 | 823.8 | 10.3 | 14 | 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 |
| 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 | 883.8 | -10.3 | 14 | 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 |
| 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 | 923.8 | 10.3 | 14 | 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 |
| 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 | 983.8 | -10.3 | 14 | 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 |
| 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 | 1023.8 | 10.3 | 14 | 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 |
| 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 | 1083.8 | -10.3 | 14 | 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 |
| 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 | 1123.8 | 10.3 | 14 | 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 |
| 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 | 1183.8 | -10.3 | 14 | 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 |
| 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 | 1223.8 | 10.3 | 14 | 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 |
| 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 | 1283.8 | -10.3 | 14 | 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 |
| 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 | 1323.8 | 10.3 | 14 | 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 |
| 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 | 1383.8 | -10.3 | 14 | 1383.8 | 10.3 | 14 | 283.8 | -10.2 | 16 |
| 283.8 | 10.2 | 16 | 303.8 | -10.2 | 16 | 303.8 | 10.2 | 16 | 323.8 | -10.2 | 16 | 323.8 | 10.2 | 16 |
| 343.8 | -10.2 | 16 | 343.8 | 10.2 | 16 | 363.8 | -10.2 | 16 | 363.8 | 10.2 | 16 | 383.8 | -10.2 | 16 |
| 383.8 | 10.2 | 16 | 403.8 | -10.2 | 16 | 403.8 | 10.2 | 16 | 423.8 | -10.2 | 16 | 423.8 | 10.2 | 16 |
| 443.8 | -10.2 | 16 | 443.8 | 10.2 | 16 | 463.8 | -10.2 | 16 | 463.8 | 10.2 | 16 | 483.8 | -10.2 | 16 |
| 483.8 | 10.2 | 16 | 503.8 | -10.2 | 16 | 503.8 | 10.2 | 16 | 523.8 | -10.2 | 16 | 523.8 | 10.2 | 16 |
| 543.8 | -10.2 | 16 | 543.8 | 10.2 | 16 | 563.8 | -10.2 | 16 | 563.8 | 10.2 | 16 | 583.8 | -10.2 | 16 |
| 583.8 | 10.2 | 16 | 603.8 | -10.2 | 16 | 603.8 | 10.2 | 16 | 623.8 | -10.2 | 16 | 623.8 | 10.2 | 16 |
| 643.8 | -10.2 | 16 | 643.8 | 10.2 | 16 | 663.8 | -10.2 | 16 | 663.8 | 10.2 | 16 | 683.8 | -10.2 | 16 |

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 683.8 | 10.2 | 16 | 703.8 | -10.2 | 16 | 703.8 | 10.2 | 16 | 723.8 | -10.2 | 16 | 723.8 | 10.2 | 16 |
| 743.8 | -10.2 | 16 | 743.8 | 10.2 | 16 | 763.8 | -10.2 | 16 | 763.8 | 10.2 | 16 | 783.8 | -10.2 | 16 |
| 783.8 | 10.2 | 16 | 803.8 | -10.2 | 16 | 803.8 | 10.2 | 16 | 823.8 | -10.2 | 16 | 823.8 | 10.2 | 16 |
| 843.8 | -10.2 | 16 | 843.8 | 10.2 | 16 | 863.8 | -10.2 | 16 | 863.8 | 10.2 | 16 | 883.8 | -10.2 | 16 |
| 883.8 | 10.2 | 16 | 903.8 | -10.2 | 16 | 903.8 | 10.2 | 16 | 923.8 | -10.2 | 16 | 923.8 | 10.2 | 16 |
| 943.8 | -10.2 | 16 | 943.8 | 10.2 | 16 | 963.8 | -10.2 | 16 | 963.8 | 10.2 | 16 | 983.8 | -10.2 | 16 |
| 983.8 | 10.2 | 16 | 1003.8 | -10.2 | 16 | 1003.8 | 10.2 | 16 | 1023.8 | -10.2 | 16 | 1023.8 | 10.2 | 16 |
| 1043.8 | -10.2 | 16 | 1043.8 | 10.2 | 16 | 1063.8 | -10.2 | 16 | 1063.8 | 10.2 | 16 | 1083.8 | -10.2 | 16 |
| 1083.8 | 10.2 | 16 | 1103.8 | -10.2 | 16 | 1103.8 | 10.2 | 16 | 1123.8 | -10.2 | 16 | 1123.8 | 10.2 | 16 |
| 1143.8 | -10.2 | 16 | 1143.8 | 10.2 | 16 | 1163.8 | -10.2 | 16 | 1163.8 | 10.2 | 16 | 1183.8 | -10.2 | 16 |
| 1183.8 | 10.2 | 16 | 1203.8 | -10.2 | 16 | 1203.8 | 10.2 | 16 | 1223.8 | -10.2 | 16 | 1223.8 | 10.2 | 16 |
| 1243.8 | -10.2 | 16 | 1243.8 | 10.2 | 16 | 1263.8 | -10.2 | 16 | 1263.8 | 10.2 | 16 | 1283.8 | -10.2 | 16 |
| 1283.8 | 10.2 | 16 | 1303.8 | -10.2 | 16 | 1303.8 | 10.2 | 16 | 1323.8 | -10.2 | 16 | 1323.8 | 10.2 | 16 |
| 1343.8 | -10.2 | 16 | 1343.8 | 10.2 | 16 | 1363.8 | -10.2 | 16 | 1363.8 | 10.2 | 16 | 1383.8 | -10.2 | 16 |
| 1383.8 | 10.2 | 16 | | | | | | | | | | | | |

Sezione a quota 68

Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 96.9 |
| 305.0 | 96.9 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 96.9 |
| 1340.0 | 96.9 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -96.9 |
| 1305.0 | -96.9 |
| 1305.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -96.9 |
| 270.0 | -96.9 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 275.5 | -10.5 | 10 | 295.5 | -10.5 | 10 | 315.5 | -10.5 | 10 | 455.5 | -10.5 | 10 | 475.5 | -10.5 | 10 |
| 495.5 | -10.5 | 10 | 515.5 | -10.5 | 10 | 535.5 | -10.5 | 10 | 555.5 | -10.5 | 10 | 575.5 | -10.5 | 10 |
| 595.5 | -10.5 | 10 | 615.5 | -10.5 | 10 | 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 | 675.5 | -10.5 | 10 |
| 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 | 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 | 775.5 | -10.5 | 10 |
| 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 | 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 | 875.5 | -10.5 | 10 |
| 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 | 975.5 | -10.5 | 10 |
| 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 | 1075.5 | -10.5 | 10 |
| 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 | 1175.5 | -10.5 | 10 |
| 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 | 1275.5 | -10.5 | 10 |
| 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 | 1375.5 | -10.5 | 10 |
| 275.5 | 10.5 | 10 | 295.5 | 10.5 | 10 | 315.5 | 10.5 | 10 | 455.5 | 10.5 | 10 | 475.5 | 10.5 | 10 |
| 495.5 | 10.5 | 10 | 515.5 | 10.5 | 10 | 535.5 | 10.5 | 10 | 555.5 | 10.5 | 10 | 575.5 | 10.5 | 10 |
| 595.5 | 10.5 | 10 | 615.5 | 10.5 | 10 | 635.5 | 10.5 | 10 | 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 |
| 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 | 755.5 | 10.5 | 10 | 775.5 | 10.5 | 10 |
| 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 | 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 |
| 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 | 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 |
| 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 | 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 |
| 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 | 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 |
| 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 | 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 |
| 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 | 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 |
| 283.8 | -10.3 | 14 | 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 | 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 |
| 323.8 | 10.3 | 14 | 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 | 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 |
| 383.8 | -10.3 | 14 | 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 | 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 |
| 423.8 | 10.3 | 14 | 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 | 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 |
| 483.8 | -10.3 | 14 | 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 | 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 |
| 523.8 | 10.3 | 14 | 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 | 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 |
| 583.8 | -10.3 | 14 | 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 | 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 |
| 623.8 | 10.3 | 14 | 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 | 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 |
| 683.8 | -10.3 | 14 | 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 | 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 |
| 723.8 | 10.3 | 14 | 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 | 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 |
| 783.8 | -10.3 | 14 | 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 | 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 |
| 823.8 | 10.3 | 14 | 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 | 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 |
| 883.8 | -10.3 | 14 | 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 | 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 |
| 923.8 | 10.3 | 14 | 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 | 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 |
| 983.8 | -10.3 | 14 | 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 | 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 |
| 1023.8 | 10.3 | 14 | 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 | 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 |
| 1083.8 | -10.3 | 14 | 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 | 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 |
| 1123.8 | 10.3 | 14 | 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 | 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 |
| 1183.8 | -10.3 | 14 | 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 | 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 |
| 1223.8 | 10.3 | 14 | 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 | 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 |
| 1283.8 | -10.3 | 14 | 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 | 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 |
| 1323.8 | 10.3 | 14 | 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 | 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 |
| 1383.8 | -10.3 | 14 | 1383.8 | 10.3 | 14 | 283.8 | -10.2 | 16 | 283.8 | 10.2 | 16 | 303.8 | -10.2 | 16 |
| 303.8 | 10.2 | 16 | 323.8 | -10.2 | 16 | 323.8 | 10.2 | 16 | 343.8 | -10.2 | 16 | 343.8 | 10.2 | 16 |
| 363.8 | -10.2 | 16 | 363.8 | 10.2 | 16 | 383.8 | -10.2 | 16 | 383.8 | 10.2 | 16 | 403.8 | -10.2 | 16 |
| 403.8 | 10.2 | 16 | 423.8 | -10.2 | 16 | 423.8 | 10.2 | 16 | 443.8 | -10.2 | 16 | 443.8 | 10.2 | 16 |
| 463.8 | -10.2 | 16 | 463.8 | 10.2 | 16 | 483.8 | -10.2 | 16 | 483.8 | 10.2 | 16 | 503.8 | -10.2 | 16 |
| 503.8 | 10.2 | 16 | 523.8 | -10.2 | 16 | 523.8 | 10.2 | 16 | 543.8 | -10.2 | 16 | 543.8 | 10.2 | 16 |
| 563.8 | -10.2 | 16 | 563.8 | 10.2 | 16 | 583.8 | -10.2 | 16 | 583.8 | 10.2 | 16 | 603.8 | -10.2 | 16 |
| 603.8 | 10.2 | 16 | 623.8 | -10.2 | 16 | 623.8 | 10.2 | 16 | 643.8 | -10.2 | 16 | 643.8 | 10.2 | 16 |
| 663.8 | -10.2 | 16 | 663.8 | 10.2 | 16 | 683.8 | -10.2 | 16 | 683.8 | 10.2 | 16 | 703.8 | -10.2 | 16 |
| 703.8 | 10.2 | 16 | 723.8 | -10.2 | 16 | 723.8 | 10.2 | 16 | 743.8 | -10.2 | 16 | 743.8 | 10.2 | 16 |
| 763.8 | -10.2 | 16 | 763.8 | 10.2 | 16 | 783.8 | -10.2 | 16 | 783.8 | 10.2 | 16 | 803.8 | -10.2 | 16 |
| 803.8 | 10.2 | 16 | 823.8 | -10.2 | 16 | 823.8 | 10.2 | 16 | 843.8 | -10.2 | 16 | 843.8 | 10.2 | 16 |
| 863.8 | -10.2 | 16 | 863.8 | 10.2 | 16 | 883.8 | -10.2 | 16 | 883.8 | 10.2 | 16 | 903.8 | -10.2 | 16 |
| 903.8 | 10.2 | 16 | 923.8 | -10.2 | 16 | 923.8 | 10.2 | 16 | 943.8 | -10.2 | 16 | 943.8 | 10.2 | 16 |
| 963.8 | -10.2 | 16 | 963.8 | 10.2 | 16 | 983.8 | -10.2 | 16 | 983.8 | 10.2 | 16 | 1003.8 | -10.2 | 16 |
| 1003.8 | 10.2 | 16 | 1023.8 | -10.2 | 16 | 1023.8 | 10.2 | 16 | 1043.8 | -10.2 | 16 | 1043.8 | 10.2 | 16 |
| 1063.8 | -10.2 | 16 | 1063.8 | 10.2 | 16 | 1083.8 | -10.2 | 16 | 1083.8 | 10.2 | 16 | 1103.8 | -10.2 | 16 |
| 1103.8 | 10.2 | 16 | 1123.8 | -10.2 | 16 | 1123.8 | 10.2 | 16 | 1143.8 | -10.2 | 16 | 1143.8 | 10.2 | 16 |
| 1163.8 | -10.2 | 16 | 1163.8 | 10.2 | 16 | 1183.8 | -10.2 | 16 | 1183.8 | 10.2 | 16 | 1203.8 | -10.2 | 16 |
| 1203.8 | 10.2 | 16 | 1223.8 | -10.2 | 16 | 1223.8 | 10.2 | 16 | 1243.8 | -10.2 | 16 | 1243.8 | 10.2 | 16 |
| 1263.8 | -10.2 | 16 | 1263.8 | 10.2 | 16 | 1283.8 | -10.2 | 16 | 1283.8 | 10.2 | 16 | 1303.8 | -10.2 | 16 |
| 1303.8 | 10.2 | 16 | 1323.8 | -10.2 | 16 | 1323.8 | 10.2 | 16 | 1343.8 | -10.2 | 16 | 1343.8 | 10.2 | 16 |
| 1363.8 | -10.2 | 16 | 1363.8 | 10.2 | 16 | 1383.8 | -10.2 | 16 | 1383.8 | 10.2 | 16 | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Sezione a quota 135
Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 80.0 |
| 305.0 | 80.0 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 80.0 |
| 1340.0 | 80.0 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -80.0 |
| 1305.0 | -80.0 |
| 1305.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -80.0 |
| 270.0 | -80.0 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 275.5 | -10.5 | 10 | 295.5 | -10.5 | 10 | 315.5 | -10.5 | 10 | 335.5 | -10.5 | 10 | 355.5 | -10.5 | 10 |
| 375.5 | -10.5 | 10 | 395.5 | -10.5 | 10 | 415.5 | -10.5 | 10 | 435.5 | -10.5 | 10 | 455.5 | -10.5 | 10 |
| 475.5 | -10.5 | 10 | 495.5 | -10.5 | 10 | 515.5 | -10.5 | 10 | 535.5 | -10.5 | 10 | 555.5 | -10.5 | 10 |
| 575.5 | -10.5 | 10 | 595.5 | -10.5 | 10 | 615.5 | -10.5 | 10 | 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 |
| 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 | 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 |
| 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 | 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 |
| 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 |
| 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 |
| 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 |
| 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 |
| 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 |
| 1375.5 | -10.5 | 10 | 275.5 | 10.5 | 10 | 295.5 | 10.5 | 10 | 315.5 | 10.5 | 10 | 335.5 | 10.5 | 10 |
| 355.5 | 10.5 | 10 | 375.5 | 10.5 | 10 | 395.5 | 10.5 | 10 | 415.5 | 10.5 | 10 | 435.5 | 10.5 | 10 |
| 455.5 | 10.5 | 10 | 475.5 | 10.5 | 10 | 495.5 | 10.5 | 10 | 515.5 | 10.5 | 10 | 535.5 | 10.5 | 10 |
| 555.5 | 10.5 | 10 | 575.5 | 10.5 | 10 | 595.5 | 10.5 | 10 | 615.5 | 10.5 | 10 | 635.5 | 10.5 | 10 |
| 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 |
| 755.5 | 10.5 | 10 | 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 |
| 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 |
| 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 |
| 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 |
| 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 |
| 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 |
| 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 | 283.8 | -10.3 | 14 | 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 |
| 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 | 323.8 | 10.3 | 14 | 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 |
| 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 | 383.8 | -10.3 | 14 | 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 |
| 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 | 423.8 | 10.3 | 14 | 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 |
| 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 | 483.8 | -10.3 | 14 | 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 |
| 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 | 523.8 | 10.3 | 14 | 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 |
| 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 | 583.8 | -10.3 | 14 | 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 |
| 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 | 623.8 | 10.3 | 14 | 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 |
| 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 | 683.8 | -10.3 | 14 | 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 |
| 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 | 723.8 | 10.3 | 14 | 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 |
| 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 | 783.8 | -10.3 | 14 | 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 |
| 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 | 823.8 | 10.3 | 14 | 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 |
| 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 | 883.8 | -10.3 | 14 | 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 |
| 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 | 923.8 | 10.3 | 14 | 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 |
| 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 | 983.8 | -10.3 | 14 | 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 |
| 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 | 1023.8 | 10.3 | 14 | 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 |
| 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 | 1083.8 | -10.3 | 14 | 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 |
| 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 | 1123.8 | 10.3 | 14 | 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 |
| 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 | 1183.8 | -10.3 | 14 | 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 |
| 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 | 1223.8 | 10.3 | 14 | 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 |
| 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 | 1283.8 | -10.3 | 14 | 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 |
| 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 | 1323.8 | 10.3 | 14 | 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 |
| 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 | 1383.8 | -10.3 | 14 | 1383.8 | 10.3 | 14 | | | |

Sezione a quota 165
Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 72.5 |
| 305.0 | 72.5 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 72.5 |
| 1340.0 | 72.5 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -72.5 |
| 1305.0 | -72.5 |
| 1305.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -72.5 |
| 270.0 | -72.5 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø | X | Y | ø |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 275.5 | -10.5 | 10 | 295.5 | -10.5 | 10 | 315.5 | -10.5 | 10 | 335.5 | -10.5 | 10 | 355.5 | -10.5 | 10 |
| 375.5 | -10.5 | 10 | 395.5 | -10.5 | 10 | 415.5 | -10.5 | 10 | 435.5 | -10.5 | 10 | 455.5 | -10.5 | 10 |
| 475.5 | -10.5 | 10 | 495.5 | -10.5 | 10 | 515.5 | -10.5 | 10 | 535.5 | -10.5 | 10 | 555.5 | -10.5 | 10 |
| 575.5 | -10.5 | 10 | 595.5 | -10.5 | 10 | 615.5 | -10.5 | 10 | 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 |
| 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 | 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 |
| 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 | 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 |
| 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 |
| 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 |
| 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 |
| 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 |

Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti

| | | | | | | | | | | | | | | |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 |
| 1375.5 | -10.5 | 10 | 275.5 | 10.5 | 10 | 295.5 | 10.5 | 10 | 315.5 | 10.5 | 10 | 335.5 | 10.5 | 10 |
| 355.5 | 10.5 | 10 | 375.5 | 10.5 | 10 | 395.5 | 10.5 | 10 | 415.5 | 10.5 | 10 | 435.5 | 10.5 | 10 |
| 455.5 | 10.5 | 10 | 475.5 | 10.5 | 10 | 495.5 | 10.5 | 10 | 515.5 | 10.5 | 10 | 535.5 | 10.5 | 10 |
| 555.5 | 10.5 | 10 | 575.5 | 10.5 | 10 | 595.5 | 10.5 | 10 | 615.5 | 10.5 | 10 | 635.5 | 10.5 | 10 |
| 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 |
| 755.5 | 10.5 | 10 | 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 |
| 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 |
| 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 |
| 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 |
| 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 |
| 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 |
| 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 | 283.8 | -10.3 | 14 | 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 |
| 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 | 323.8 | 10.3 | 14 | 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 |
| 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 | 383.8 | -10.3 | 14 | 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 |
| 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 | 423.8 | 10.3 | 14 | 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 |
| 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 | 483.8 | -10.3 | 14 | 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 |
| 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 | 523.8 | 10.3 | 14 | 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 |
| 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 | 583.8 | -10.3 | 14 | 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 |
| 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 | 623.8 | 10.3 | 14 | 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 |
| 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 | 683.8 | -10.3 | 14 | 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 |
| 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 | 723.8 | 10.3 | 14 | 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 |
| 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 | 783.8 | -10.3 | 14 | 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 |
| 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 | 823.8 | 10.3 | 14 | 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 |
| 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 | 883.8 | -10.3 | 14 | 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 |
| 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 | 923.8 | 10.3 | 14 | 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 |
| 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 | 983.8 | -10.3 | 14 | 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 |
| 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 | 1023.8 | 10.3 | 14 | 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 |
| 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 | 1083.8 | -10.3 | 14 | 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 |
| 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 | 1123.8 | 10.3 | 14 | 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 |
| 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 | 1183.8 | -10.3 | 14 | 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 |
| 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 | 1223.8 | 10.3 | 14 | 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 |
| 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 | 1283.8 | -10.3 | 14 | 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 |
| 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 | 1323.8 | 10.3 | 14 | 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 |
| 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 | 1383.8 | -10.3 | 14 | 1383.8 | 10.3 | 14 | | | |

Sezione a quota 300
Coordinate dei vertici

| X | Y |
|--------|-------|
| 270.0 | 17.5 |
| 270.0 | 38.8 |
| 305.0 | 38.8 |
| 305.0 | 17.5 |
| 1305.0 | 17.5 |
| 1305.0 | 38.8 |
| 1340.0 | 38.8 |
| 1340.0 | 17.5 |
| 1397.5 | 17.5 |
| 1397.5 | -17.5 |
| 1340.0 | -17.5 |
| 1340.0 | -38.8 |
| 1305.0 | -38.8 |
| 1305.0 | -17.5 |
| 305.0 | -17.5 |
| 305.0 | -38.8 |
| 270.0 | -38.8 |
| 270.0 | -17.5 |

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 275.5 | -10.5 | 10 | 295.5 | -10.5 | 10 | 315.5 | -10.5 | 10 | 335.5 | -10.5 | 10 | 355.5 | -10.5 | 10 |
| 375.5 | -10.5 | 10 | 395.5 | -10.5 | 10 | 415.5 | -10.5 | 10 | 435.5 | -10.5 | 10 | 455.5 | -10.5 | 10 |
| 475.5 | -10.5 | 10 | 495.5 | -10.5 | 10 | 515.5 | -10.5 | 10 | 535.5 | -10.5 | 10 | 555.5 | -10.5 | 10 |
| 575.5 | -10.5 | 10 | 595.5 | -10.5 | 10 | 615.5 | -10.5 | 10 | 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 |
| 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 | 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 |
| 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 | 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 |
| 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 |
| 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 |
| 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 |
| 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 |
| 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 |
| 1375.5 | -10.5 | 10 | 275.5 | 10.5 | 10 | 295.5 | 10.5 | 10 | 315.5 | 10.5 | 10 | 335.5 | 10.5 | 10 |
| 355.5 | 10.5 | 10 | 375.5 | 10.5 | 10 | 395.5 | 10.5 | 10 | 415.5 | 10.5 | 10 | 435.5 | 10.5 | 10 |
| 455.5 | 10.5 | 10 | 475.5 | 10.5 | 10 | 495.5 | 10.5 | 10 | 515.5 | 10.5 | 10 | 535.5 | 10.5 | 10 |
| 555.5 | 10.5 | 10 | 575.5 | 10.5 | 10 | 595.5 | 10.5 | 10 | 615.5 | 10.5 | 10 | 635.5 | 10.5 | 10 |
| 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 |
| 755.5 | 10.5 | 10 | 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 |
| 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 |
| 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 |
| 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 |
| 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 |
| 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 |
| 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 | 283.8 | -10.3 | 14 | 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 |
| 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 | 323.8 | 10.3 | 14 | 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 |
| 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 | 383.8 | -10.3 | 14 | 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 |
| 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 | 423.8 | 10.3 | 14 | 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 |
| 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 | 483.8 | -10.3 | 14 | 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 |
| 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 | 523.8 | 10.3 | 14 | 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 |
| 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 | 583.8 | -10.3 | 14 | 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 |
| 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 | 623.8 | 10.3 | 14 | 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 |
| 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 | 683.8 | -10.3 | 14 | 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 |
| 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 | 723.8 | 10.3 | 14 | 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 |
| 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 | 783.8 | -10.3 | 14 | 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 |
| 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 | 823.8 | 10.3 | 14 | 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 |
| 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 | 883.8 | -10.3 | 14 | 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 |
| 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 | 923.8 | 10.3 | 14 | 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 |
| 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 | 983.8 | -10.3 | 14 | 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 |
| 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 | 1023.8 | 10.3 | 14 | 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 |
| 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 | 1083.8 | -10.3 | 14 | 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 |
| 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 | 1123.8 | 10.3 | 14 | 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 |
| 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 | 1183.8 | -10.3 | 14 | 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 |
| 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 | 1223.8 | 10.3 | 14 | 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 |
| 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 | 1283.8 | -10.3 | 14 | 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 |
| 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 | 1323.8 | 10.3 | 14 | 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 |
| 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 | 1383.8 | -10.3 | 14 | 1383.8 | 10.3 | 14 | | | |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

Sezione a quota 435
Coordinate dei vertici
X Y
270.0 -17.5
270.0 17.5
1397.5 17.5
1397.5 -17.5

Armature verticali

| X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ | X | Y | ∅ |
|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|--------|-------|----|
| 275.5 | -10.5 | 10 | 295.5 | -10.5 | 10 | 315.5 | -10.5 | 10 | 335.5 | -10.5 | 10 | 355.5 | -10.5 | 10 |
| 375.5 | -10.5 | 10 | 395.5 | -10.5 | 10 | 415.5 | -10.5 | 10 | 435.5 | -10.5 | 10 | 455.5 | -10.5 | 10 |
| 475.5 | -10.5 | 10 | 495.5 | -10.5 | 10 | 515.5 | -10.5 | 10 | 535.5 | -10.5 | 10 | 555.5 | -10.5 | 10 |
| 575.5 | -10.5 | 10 | 595.5 | -10.5 | 10 | 615.5 | -10.5 | 10 | 635.5 | -10.5 | 10 | 655.5 | -10.5 | 10 |
| 675.5 | -10.5 | 10 | 695.5 | -10.5 | 10 | 715.5 | -10.5 | 10 | 735.5 | -10.5 | 10 | 755.5 | -10.5 | 10 |
| 775.5 | -10.5 | 10 | 795.5 | -10.5 | 10 | 815.5 | -10.5 | 10 | 835.5 | -10.5 | 10 | 855.5 | -10.5 | 10 |
| 875.5 | -10.5 | 10 | 895.5 | -10.5 | 10 | 915.5 | -10.5 | 10 | 935.5 | -10.5 | 10 | 955.5 | -10.5 | 10 |
| 975.5 | -10.5 | 10 | 995.5 | -10.5 | 10 | 1015.5 | -10.5 | 10 | 1035.5 | -10.5 | 10 | 1055.5 | -10.5 | 10 |
| 1075.5 | -10.5 | 10 | 1095.5 | -10.5 | 10 | 1115.5 | -10.5 | 10 | 1135.5 | -10.5 | 10 | 1155.5 | -10.5 | 10 |
| 1175.5 | -10.5 | 10 | 1195.5 | -10.5 | 10 | 1215.5 | -10.5 | 10 | 1235.5 | -10.5 | 10 | 1255.5 | -10.5 | 10 |
| 1275.5 | -10.5 | 10 | 1295.5 | -10.5 | 10 | 1315.5 | -10.5 | 10 | 1335.5 | -10.5 | 10 | 1355.5 | -10.5 | 10 |
| 1375.5 | -10.5 | 10 | 275.5 | 10.5 | 10 | 295.5 | 10.5 | 10 | 315.5 | 10.5 | 10 | 335.5 | 10.5 | 10 |
| 355.5 | 10.5 | 10 | 375.5 | 10.5 | 10 | 395.5 | 10.5 | 10 | 415.5 | 10.5 | 10 | 435.5 | 10.5 | 10 |
| 455.5 | 10.5 | 10 | 475.5 | 10.5 | 10 | 495.5 | 10.5 | 10 | 515.5 | 10.5 | 10 | 535.5 | 10.5 | 10 |
| 555.5 | 10.5 | 10 | 575.5 | 10.5 | 10 | 595.5 | 10.5 | 10 | 615.5 | 10.5 | 10 | 635.5 | 10.5 | 10 |
| 655.5 | 10.5 | 10 | 675.5 | 10.5 | 10 | 695.5 | 10.5 | 10 | 715.5 | 10.5 | 10 | 735.5 | 10.5 | 10 |
| 755.5 | 10.5 | 10 | 775.5 | 10.5 | 10 | 795.5 | 10.5 | 10 | 815.5 | 10.5 | 10 | 835.5 | 10.5 | 10 |
| 855.5 | 10.5 | 10 | 875.5 | 10.5 | 10 | 895.5 | 10.5 | 10 | 915.5 | 10.5 | 10 | 935.5 | 10.5 | 10 |
| 955.5 | 10.5 | 10 | 975.5 | 10.5 | 10 | 995.5 | 10.5 | 10 | 1015.5 | 10.5 | 10 | 1035.5 | 10.5 | 10 |
| 1055.5 | 10.5 | 10 | 1075.5 | 10.5 | 10 | 1095.5 | 10.5 | 10 | 1115.5 | 10.5 | 10 | 1135.5 | 10.5 | 10 |
| 1155.5 | 10.5 | 10 | 1175.5 | 10.5 | 10 | 1195.5 | 10.5 | 10 | 1215.5 | 10.5 | 10 | 1235.5 | 10.5 | 10 |
| 1255.5 | 10.5 | 10 | 1275.5 | 10.5 | 10 | 1295.5 | 10.5 | 10 | 1315.5 | 10.5 | 10 | 1335.5 | 10.5 | 10 |
| 1355.5 | 10.5 | 10 | 1375.5 | 10.5 | 10 | 283.8 | -10.3 | 14 | 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 |
| 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 | 323.8 | 10.3 | 14 | 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 |
| 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 | 383.8 | -10.3 | 14 | 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 |
| 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 | 423.8 | 10.3 | 14 | 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 |
| 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 | 483.8 | -10.3 | 14 | 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 |
| 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 | 523.8 | 10.3 | 14 | 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 |
| 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 | 583.8 | -10.3 | 14 | 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 |
| 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 | 623.8 | 10.3 | 14 | 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 |
| 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 | 683.8 | -10.3 | 14 | 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 |
| 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 | 723.8 | 10.3 | 14 | 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 |
| 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 | 783.8 | -10.3 | 14 | 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 |
| 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 | 823.8 | 10.3 | 14 | 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 |
| 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 | 883.8 | -10.3 | 14 | 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 |
| 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 | 923.8 | 10.3 | 14 | 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 |
| 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 | 983.8 | -10.3 | 14 | 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 |
| 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 | 1023.8 | 10.3 | 14 | 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 |
| 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 | 1083.8 | -10.3 | 14 | 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 |
| 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 | 1123.8 | 10.3 | 14 | 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 |
| 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 | 1183.8 | -10.3 | 14 | 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 |
| 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 | 1223.8 | 10.3 | 14 | 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 |
| 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 | 1283.8 | -10.3 | 14 | 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 |
| 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 | 1323.8 | 10.3 | 14 | 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 |
| 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 | 1383.8 | -10.3 | 14 | 1383.8 | 10.3 | 14 | 283.8 | -10.3 | 14 |
| 283.8 | 10.3 | 14 | 303.8 | -10.3 | 14 | 303.8 | 10.3 | 14 | 323.8 | -10.3 | 14 | 323.8 | 10.3 | 14 |
| 343.8 | -10.3 | 14 | 343.8 | 10.3 | 14 | 363.8 | -10.3 | 14 | 363.8 | 10.3 | 14 | 383.8 | -10.3 | 14 |
| 383.8 | 10.3 | 14 | 403.8 | -10.3 | 14 | 403.8 | 10.3 | 14 | 423.8 | -10.3 | 14 | 423.8 | 10.3 | 14 |
| 443.8 | -10.3 | 14 | 443.8 | 10.3 | 14 | 463.8 | -10.3 | 14 | 463.8 | 10.3 | 14 | 483.8 | -10.3 | 14 |
| 483.8 | 10.3 | 14 | 503.8 | -10.3 | 14 | 503.8 | 10.3 | 14 | 523.8 | -10.3 | 14 | 523.8 | 10.3 | 14 |
| 543.8 | -10.3 | 14 | 543.8 | 10.3 | 14 | 563.8 | -10.3 | 14 | 563.8 | 10.3 | 14 | 583.8 | -10.3 | 14 |
| 583.8 | 10.3 | 14 | 603.8 | -10.3 | 14 | 603.8 | 10.3 | 14 | 623.8 | -10.3 | 14 | 623.8 | 10.3 | 14 |
| 643.8 | -10.3 | 14 | 643.8 | 10.3 | 14 | 663.8 | -10.3 | 14 | 663.8 | 10.3 | 14 | 683.8 | -10.3 | 14 |
| 683.8 | 10.3 | 14 | 703.8 | -10.3 | 14 | 703.8 | 10.3 | 14 | 723.8 | -10.3 | 14 | 723.8 | 10.3 | 14 |
| 743.8 | -10.3 | 14 | 743.8 | 10.3 | 14 | 763.8 | -10.3 | 14 | 763.8 | 10.3 | 14 | 783.8 | -10.3 | 14 |
| 783.8 | 10.3 | 14 | 803.8 | -10.3 | 14 | 803.8 | 10.3 | 14 | 823.8 | -10.3 | 14 | 823.8 | 10.3 | 14 |
| 843.8 | -10.3 | 14 | 843.8 | 10.3 | 14 | 863.8 | -10.3 | 14 | 863.8 | 10.3 | 14 | 883.8 | -10.3 | 14 |
| 883.8 | 10.3 | 14 | 903.8 | -10.3 | 14 | 903.8 | 10.3 | 14 | 923.8 | -10.3 | 14 | 923.8 | 10.3 | 14 |
| 943.8 | -10.3 | 14 | 943.8 | 10.3 | 14 | 963.8 | -10.3 | 14 | 963.8 | 10.3 | 14 | 983.8 | -10.3 | 14 |
| 983.8 | 10.3 | 14 | 1003.8 | -10.3 | 14 | 1003.8 | 10.3 | 14 | 1023.8 | -10.3 | 14 | 1023.8 | 10.3 | 14 |
| 1043.8 | -10.3 | 14 | 1043.8 | 10.3 | 14 | 1063.8 | -10.3 | 14 | 1063.8 | 10.3 | 14 | 1083.8 | -10.3 | 14 |
| 1083.8 | 10.3 | 14 | 1103.8 | -10.3 | 14 | 1103.8 | 10.3 | 14 | 1123.8 | -10.3 | 14 | 1123.8 | 10.3 | 14 |
| 1143.8 | -10.3 | 14 | 1143.8 | 10.3 | 14 | 1163.8 | -10.3 | 14 | 1163.8 | 10.3 | 14 | 1183.8 | -10.3 | 14 |
| 1183.8 | 10.3 | 14 | 1203.8 | -10.3 | 14 | 1203.8 | 10.3 | 14 | 1223.8 | -10.3 | 14 | 1223.8 | 10.3 | 14 |
| 1243.8 | -10.3 | 14 | 1243.8 | 10.3 | 14 | 1263.8 | -10.3 | 14 | 1263.8 | 10.3 | 14 | 1283.8 | -10.3 | 14 |
| 1283.8 | 10.3 | 14 | 1303.8 | -10.3 | 14 | 1303.8 | 10.3 | 14 | 1323.8 | -10.3 | 14 | 1323.8 | 10.3 | 14 |
| 1343.8 | -10.3 | 14 | 1343.8 | 10.3 | 14 | 1363.8 | -10.3 | 14 | 1363.8 | 10.3 | 14 | 1383.8 | -10.3 | 14 |
| 1383.8 | 10.3 | 14 | | | | | | | | | | | | |

Verifica eseguita con comportamento non dissipativo
Le condizioni sismiche sono state moltiplicate per i rispettivi fattori di struttura
fcd fctd Hcr q.Hcr hw Lw n.p. hs
188 14 283 243 495 1128 2 243

Verifica a pressoflessione

| quota | Mxd | Myd | Ned | Ngrav. | NReale | c.s. comb |
|-------|----------|----------|---------|---------|---------|----------------|
| 0 | -7912410 | 16786680 | -121583 | -121583 | -121583 | 3.4957 3 SLV |
| 0 | -9796329 | 17509320 | -106699 | -97404 | -106699 | 2.7120 13 SLV |
| 68 | -2781928 | 11397850 | -95805 | -95805 | -95805 | 22.3222 3 SLV |
| 68 | -4044314 | 12109920 | -84661 | -74900 | -84661 | 14.9135 14 SLV |
| 135 | 323594 | 3520333 | -76728 | -76728 | -76728 | 103.3602 2 SLV |
| 135 | -435225 | 4539986 | -68343 | -58494 | -68343 | 93.6592 14 SLV |
| 165 | 1115242 | 2573147 | -69661 | -69661 | -69661 | 44.0254 2 SLV |
| 165 | 980697 | 1631856 | -44000 | -52328 | -44000 | 45.4125 4 SLV |
| 300 | 1778119 | -174894 | -29091 | -29091 | -29091 | 10.8676 3 SLV |
| 300 | 2010427 | -757181 | -23705 | -19766 | -23705 | 9.0047 15 SLV |
| 435 | -32180 | -486072 | -2721 | -2721 | -2721 | 983.4718 1 SLV |
| 435 | -35771 | 1177244 | 1919 | -379 | 1919 | 263.8255 4 SLV |

Controllo dello sforzo normale massimo

| quota | Ned | Nmax(7.4.4.5.2.1) | c.s. comb |
|-------|---------|-------------------|----------------|
| 0 | -106705 | -3206733 | 30.0524 14 SLV |
| 68 | -84661 | -3805937 | 44.9549 14 SLV |
| 135 | -68343 | -3628151 | 53.0873 14 SLV |

**Ampliamento e potenziamento dell'Impianto di depurazione acque reflue di Ponte Sasso – Fano (PU)
Relazione di calcolo strutturale denitrificazione-ossidazione e locale soffianti**

| | | | | | |
|-----|--------|----------|----------|----|-----|
| 165 | -60658 | -3549135 | 58.5104 | 14 | SLV |
| 300 | -24725 | -3193563 | 129.1659 | 14 | SLV |
| 435 | -3275 | -2969685 | 906.8591 | 10 | SLV |

Verifica compressione del diagonale

| quota | epsilon | VEd | Vrcd | comb |
|-------|---------|--------|---------|--------|
| 0 | 1.00 | -762 | 1377466 | 3 SLU |
| 0 | 1.00 | -36435 | 1371659 | 11 SLV |
| 68 | 1.00 | -1637 | 1372310 | 3 SLU |
| 68 | 1.00 | -38289 | 1367459 | 11 SLV |
| 135 | 1.00 | -4373 | 1500169 | 3 SLU |
| 135 | 1.00 | -42476 | 1496304 | 11 SLV |
| 165 | 1.00 | -5839 | 1498758 | 3 SLU |
| 165 | 1.00 | -42205 | 1495307 | 11 SLV |
| 300 | 1.00 | -8271 | 1490661 | 3 SLU |
| 300 | 1.00 | -49973 | 1489004 | 11 SLV |
| 435 | 1.00 | -24707 | 1485336 | 3 SLU |
| 435 | 1.00 | -37843 | 1484943 | 11 SLV |

Verifica trazione del diagonale

| quota | At | roh | rov | VEd | NEd | VRsd | comb |
|-------|-------|--------|--------|--------|---------|---------|--------|
| 0 | 477.7 | 0.0059 | 0.0133 | -762 | -121583 | 664737 | 3 SLU |
| 0 | 477.7 | 0.0059 | 0.0133 | -36435 | -92548 | 664737 | 11 SLV |
| 68 | 476.1 | 0.0066 | 0.0132 | -1637 | -95805 | 747877 | 3 SLU |
| 68 | 476.1 | 0.0066 | 0.0132 | -38289 | -71547 | 747877 | 11 SLV |
| 135 | 260.4 | 0.0066 | 0.0066 | -4373 | -76633 | 820663 | 3 SLU |
| 135 | 260.4 | 0.0066 | 0.0066 | -42476 | -57308 | 820663 | 11 SLV |
| 165 | 260.4 | 0.0066 | 0.0066 | -5839 | -69580 | 820663 | 3 SLU |
| 165 | 260.4 | 0.0066 | 0.0066 | -42205 | -52322 | 820663 | 11 SLV |
| 300 | 260.4 | 0.0139 | 0.0066 | -8271 | -29091 | 1718956 | 3 SLU |
| 300 | 260.4 | 0.0139 | 0.0066 | -49973 | -20810 | 1718956 | 11 SLV |
| 435 | 432.8 | 0.0119 | 0.0110 | -24707 | -2466 | 1473331 | 3 SLU |
| 435 | 432.8 | 0.0119 | 0.0110 | -37843 | -501 | 1473331 | 11 SLV |

Platea a "Fondazione"

Valori in daN, cm
C32/40: rck 400
fyk 4500

Verifica di stato limite ultimo

| nod sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | |
|---------|---|-----|-----|------|------|-----|------|--------|-------|---|---------|----|----------|
| 975 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | 1.013 | 2 SLU | 0 | 545395 | 0 | -552493 |
| | v | 100 | 40 | 3.9 | 3.9 | 6.0 | 6.0 | 11.728 | 2 SLU | 0 | 46493 | 0 | -545258 |
| 1485 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | 6.595 | 1 SLU | 0 | 83780 | 0 | -552493 |
| | v | 100 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | 1.024 | 1 SLU | 0 | 1463510 | 0 | -1497926 |
| 1622 | o | 50 | 40 | 1.6 | 1.6 | 7.0 | 7.0 | 1.009 | 3 SLU | 0 | 221907 | 0 | -224003 |
| | v | 95 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | 8.821 | 3 SLU | 0 | 168920 | 0 | -1490115 |

Combinazione rara

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
|---------|---|-----|-----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|--------|-----|------|
| 975 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | -47.9 | 1 ra | 0.00E00 | 4.15E05 | 3377.9 | 1 ra | 0.00E00 | 4.15E05 | 0.00 | 15.3 | 0.0 | 1 ra |
| | v | 100 | 40 | 3.9 | 3.9 | 6.0 | 6.0 | -3.7 | 1 ra | 0.00E00 | 3.40E04 | 269.9 | 1 ra | 0.00E00 | 3.40E04 | 0.00 | 1.3 | 0.0 | 1 ra |
| 1485 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | -7.4 | 1 ra | 0.00E00 | 6.46E04 | 525.4 | 1 ra | 0.00E00 | 6.46E04 | 0.00 | 2.4 | 0.0 | 1 ra |
| | v | 100 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | -75.0 | 1 ra | 0.00E00 | 1.03E06 | 3207.1 | 1 ra | 0.00E00 | 1.03E06 | 0.00 | 37.2 | 0.0 | 1 ra |
| 1622 | o | 50 | 40 | 1.6 | 1.6 | 7.0 | 7.0 | -39.2 | 1 ra | 0.00E00 | 1.53E05 | 3092.8 | 1 ra | 0.00E00 | 1.53E05 | 0.00 | 11.4 | 0.0 | 1 ra |
| | v | 95 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | -8.7 | 1 ra | 0.00E00 | 1.17E05 | 363.8 | 1 ra | 0.00E00 | 1.17E05 | 0.00 | 4.4 | 0.0 | 1 ra |

Combinazione frequente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
|---------|---|-----|-----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|--------|-----|------|
| 975 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | -46.2 | 3 fr | 0.00E00 | 4.01E05 | 3261.3 | 3 fr | 0.00E00 | 4.01E05 | 0.00 | 14.8 | 0.0 | 2 fr |
| | v | 100 | 40 | 3.9 | 3.9 | 6.0 | 6.0 | -3.6 | 3 fr | 0.00E00 | 3.32E04 | 263.0 | 3 fr | 0.00E00 | 3.32E04 | 0.00 | 1.2 | 0.0 | 2 fr |
| 1485 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | -6.9 | 3 fr | 0.00E00 | 5.95E04 | 484.0 | 3 fr | 0.00E00 | 5.95E04 | 0.00 | 2.2 | 0.0 | 3 fr |
| | v | 100 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | -70.0 | 3 fr | 0.00E00 | 9.65E05 | 2992.7 | 3 fr | 0.00E00 | 9.65E05 | 0.00 | 34.7 | 0.0 | 3 fr |
| 1622 | o | 50 | 40 | 1.6 | 1.6 | 7.0 | 7.0 | -38.0 | 3 fr | 0.00E00 | 1.49E05 | 3001.3 | 3 fr | 0.00E00 | 1.49E05 | 0.00 | 11.0 | 0.0 | 3 fr |
| | v | 95 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | -8.4 | 3 fr | 0.00E00 | 1.13E05 | 353.0 | 3 fr | 0.00E00 | 1.13E05 | 0.00 | 4.3 | 0.0 | 3 fr |

Combinazione quasi permanente

| nod sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c | |
|---------|---|-----|-----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|------|--------|-----|------|
| 975 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | -45.9 | 1 q. | 0.00E00 | 3.98E05 | 3238.4 | 1 q. | 0.00E00 | 3.98E05 | 0.00 | 14.7 | 0.0 | 1 q. |
| | v | 100 | 40 | 3.9 | 3.9 | 6.0 | 6.0 | -3.3 | 1 q. | 0.00E00 | 3.08E04 | 244.7 | 1 q. | 0.00E00 | 3.08E04 | 0.00 | 1.1 | 0.0 | 1 q. |
| 1485 | o | 100 | 40 | 3.9 | 3.9 | 7.0 | 7.0 | -5.3 | 1 q. | 0.00E00 | 4.58E04 | 372.7 | 1 q. | 0.00E00 | 4.58E04 | 0.00 | 1.7 | 0.0 | 1 q. |
| | v | 100 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | -57.3 | 1 q. | 0.00E00 | 7.90E05 | 2449.6 | 1 q. | 0.00E00 | 7.90E05 | 0.00 | 28.4 | 0.0 | 1 q. |
| 1622 | o | 50 | 40 | 1.6 | 1.6 | 7.0 | 7.0 | -30.1 | 1 q. | 0.00E00 | 1.18E05 | 2379.9 | 1 q. | 0.00E00 | 1.18E05 | 0.00 | 8.7 | 0.0 | 1 q. |
| | v | 95 | 40 | 11.6 | 11.6 | 7.5 | 7.5 | -6.7 | 1 q. | 0.00E00 | 9.02E04 | 280.8 | 1 q. | 0.00E00 | 9.02E04 | 0.00 | 3.4 | 0.0 | 1 q. |

Stampa delle verifiche manuali

Verifica di stato limite ultimo

Verifica punto a coordinate x=2403 y=717 z=-20

| sez | B | H | Af+ | Af- | c+ | c- | c.s. | comb | N | M | Nu | Mu | Ved | Vcd |
|-----|-----|----|------|------|-----|-----|-------|-------|---|---------|----|----------|------|--------|
| v | 642 | 40 | 74.4 | 74.4 | 7.5 | 7.5 | 1.844 | 1 SLU | 0 | 5202046 | 0 | -9591952 | 2226 | 101888 |

Combinazione rara

Verifica punto a coordinate x=2403 y=717 z=-20

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|-----|-----|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|--------|------|--------|------|
| v | 642 | 40 | 74.4 | 74.4 | 7.5 | 7.5 | -43.6 | 1 ra | 0.00E00 | 3.86E06 | 1868.8 | 1 ra | 0.00E00 | 3.86E06 | 0.00 | 21.6 | 0.0 | 1 ra |

Combinazione frequente

Verifica punto a coordinate x=2403 y=717 z=-20

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|-----|-----|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|--------|------|--------|------|
| v | 642 | 40 | 74.4 | 74.4 | 7.5 | 7.5 | -42.0 | 3 fr | 0.00E00 | 3.71E06 | 1799.3 | 3 fr | 0.00E00 | 3.71E06 | 0.00 | 20.8 | 0.0 | 3 fr |

Combinazione quasi permanente

Verifica punto a coordinate x=2403 y=717 z=-20

| sez | B | H | Af+ | Af- | c+ | c- | sc | c | N | M | sf | c | N | M | Wk(mm) | st | Sm(mm) | c |
|-----|-----|----|------|------|-----|-----|-------|------|---------|---------|--------|------|---------|---------|--------|------|--------|------|
| v | 642 | 40 | 74.4 | 74.4 | 7.5 | 7.5 | -37.9 | 1 q. | 0.00E00 | 3.35E06 | 1622.5 | 1 q. | 0.00E00 | 3.35E06 | 0.00 | 18.7 | 0.0 | 1 q. |