

LEGEND:

Phase 1 → 282,459 m³/d
→ Preliminary + Primary
(Design + Execution)

Phase 2 → 282,459 m³/d
→ Secondary
(Design Only)

NOTES:

1. The Contractor is responsible for:
   - Design and execution for Phase 1.
   - Design for Phase 2.

2. The tender design took into consideration the preservation of the Ancient Wall in its current conditions. At the works start, contractor should investigate the area through trial pits and other non-destructive means to explore the extension and the exact locations of this wall and any archeological remains in the works area. All these works are to be fully coordinated with the DGA (Direction Générale des Antiquités). Based on the results of these investigations and coordination, modifications on the proposed setup plan of the different phases of the WWTP maybe be modified to take into consideration the potential existence of other remains and according to the DGA decisions.

LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH NAZIH TALEB & PARTNERS Founded 1956

ARTELIA

New WWTP Site	DRAWN : H.
	CHECKED : S.H
	APPROVED : F.L
	DATE : 05 March 2025
Phase 1 Site Setup	SCALE : 1:400
	FILE NAME: NTP-P1S-02

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1S	02	0

Seawater

Drainage R.C.
PIPE Φ900 (ID)

Drop
Manhole

6m wide Gate

Ground Covering Gravel
Size Number 3

Fence Wall

Precast
Curbstone

Precast Curbstone

Green Area
(Grass)

Ancient Wall

A

B

C

D

Grading

Canal INV:
+3.92

Canal INV:
+3.87

Canal INV:
+3.73

Canal INV:
+3.71

Canal INV:
+3.69

Canal INV:
+3.65

Canal INV:
+3.35

Canal INV:
+3.28

Canal INV:
+3.78

Canal INV:
+3.97

X −339550

X −339500

X −339450

X −339400

Y −36450

Y −36400

Y −36350

Y −36300

Y −36250

N

LEGEND:

Phase 1 → 282,459 m³/d
→ Preliminary + Primary
(Design + Execution)

Phase 2 → 282,459 m³/d
→ Secondary
(Design Only)

NOTES:

1. The Contractor is responsible for:
   - Design and execution for Phase 1.
   - Design for Phase 2.

2. The tender design took into consideration the preservation of the Ancient Wall in its current conditions. At the works start, contractor should investigate the area through trial pits and other non-destructive means to explore the extension and the exact locations of this wall and any archeological remains in the works area. All these works are to be fully coordinated with the DGA (Direction Générale des Antiquités). Based on the results of these investigations and coordination, modifications on the proposed setup plan of the different phases of the WWTP maybe be modified to take into consideration the potential existence of other remains and according to the DGA decisions.

LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH
NAZIH TALEB & PARTNERS
Founded 1956

ARTELIA

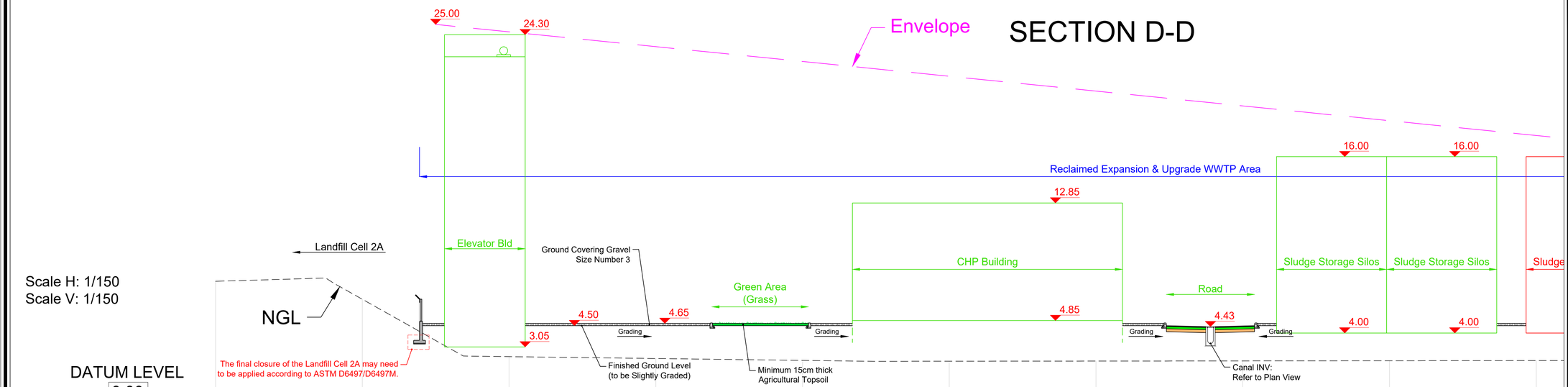
New WWTP Site

Phase 1 Landscaping, Drainage & Grading Plan

DRAWN :	H.I
CHECKED :	S.H
APPROVED :	F.L
DATE :	05 March 2025
SCALE :	1:400
FILE NAME	NTP-P1LDG-03

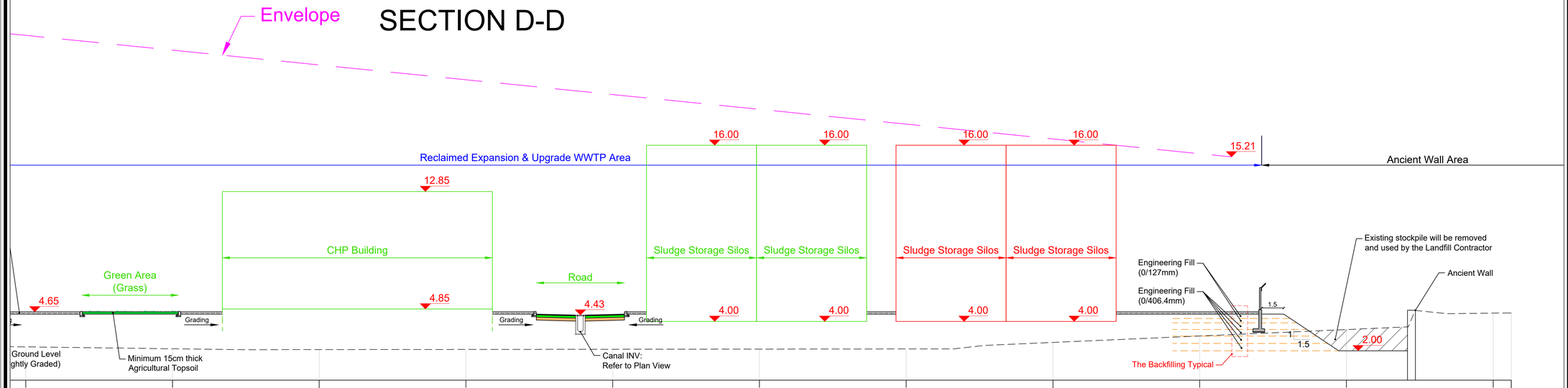
PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1LDG	03	0

SECTION D-D



Cumulative Distance	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00
Natural Ground Level	7.52	6.30	2.39	2.26	2.14	2.08	2.09	2.10	2.11	2.12
Horizontal Alignment	L =13.90	L =1.70	L =5.50	L =12.76	L =6.54	L =3.00	L =18.40	L =3.00	L =6.00	L =1.50	L =7.50	L =7.50	L =2.00

SECTION D-D



	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	131.24
	2.26	2.14	2.08	2.09	2.10	2.11	2.12	2.57	3.01	3.44	4.56	4.58
	L =6.54	L =3.00	L =18.40	L =3.00	L =6.00	L =1.50	L =7.50	L =7.50	L =2.00	L =7.50	L =7.50	L =9.92	L =9.94	L =0.54	L =6.53

LEGEND:

Green : Phase I

Red : Phase II

NOTES:

1. The backfilling with engineering fills (0/406.4mm and/or 0/127mm, refer to Notes in drawings) shall uniformly be done around the structures and between the elevations +2.00 and +4.50 (finishing ground level to be slightly graded), knowing that the Manmade Fill and underlying Gravely very Silty fine SAND (seabed sediments) below the elevation +2.00 will be densified/treated by Deep Dynamic Compaction.

2. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

   - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the Engineer. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/2 inches in diameter.
   - Topsoil must be free of noxious plants or plant parts.
   - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the Engineer, may be used in lieu of natural topsoil.

3. The Ground Covering Gravel Size Number 3 shall be according to ASTM C33, and shall be placed in tamped layers of 15cm thick with respect to its maximum and median grain-sizes of 63mm and 37.5mm, respectively.

   The Ground Covering Gravel Size Number 3 (25mm to 50mm in grain-size) shall be strong (Uniaxial-CS >= 50MPa), sound and durable (Slake Durability Index > 90% and description of fragments after test shall be Type I according to ASTM D 4644) limestone (not sandy and/or marly).

   The Ground Covering Gravel Size Number 3 shall be tested as follows, and shall be approved by the Engineer.

   - CaCO3,
   - Clay Lumps and Friable Particles,
   - Flakiness and Elongation Index,
   - Specific Gravity (Saturated Surface Dry) and Water Absorption,
   - LA (500 revolutions),
   - Soundness,
   - Slake Durability, and
   - Compressive Strength and/or PLI.

4. The height of the buildings and tanks shall be subject to the regulation set by the General Directorate of Urban Planning and Beirut Airport Authorities; the height envelope as per current regulation is shown on the tender drawings. Upon the award of the contract, the contractor must verify any update of the regulation and implement it in his design.

LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH
NAZIH TALEB & PARTNERS
Founded 1956

ARTELIA

New WWTP Site

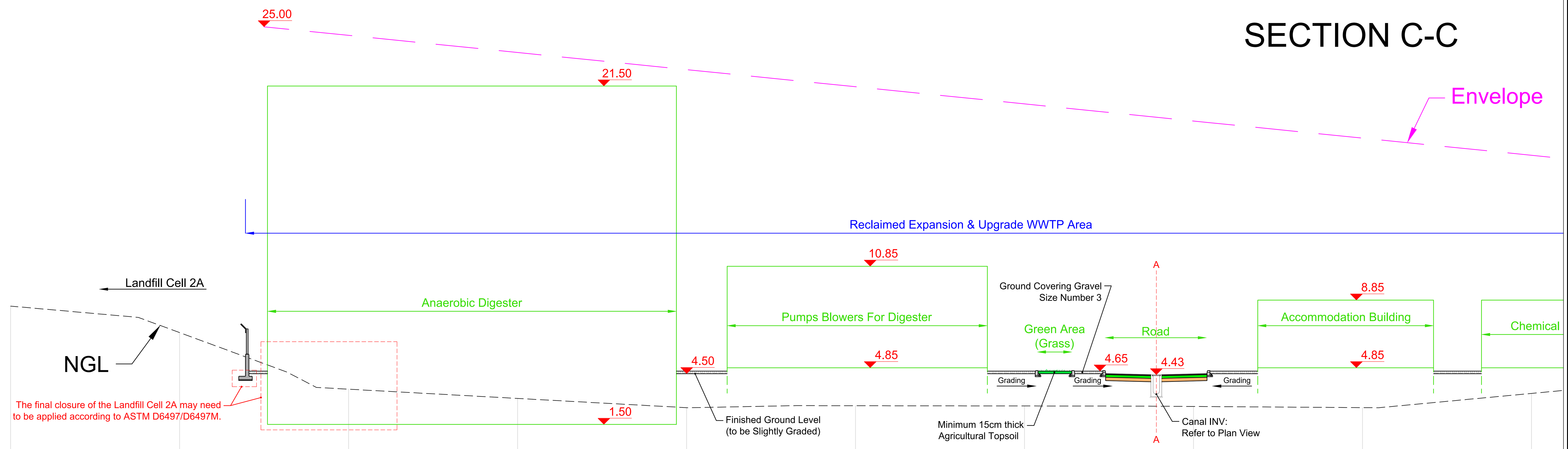
Phase 1 Section D-D

DRAWN :	H.I
CHECKED :	S.H
APPROVED :	F.L
DATE :	05 March 2025
SCALE :	1:150
FILE NAME	NTP-P1Sd-07

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1Sd	07	0

SECTION C-C

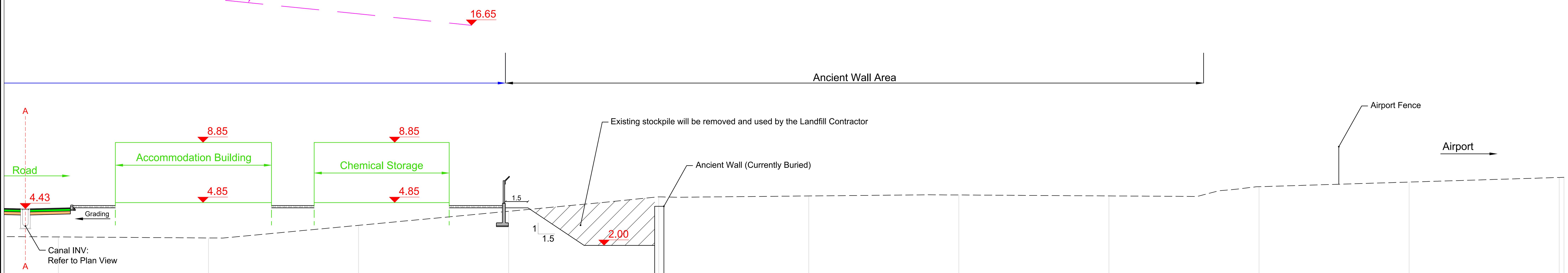
Scale H: 1/150
Scale V: 1/150



Cumulative Distance	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00
Natural Ground Level	8.49	6.93	3.58	3.04	2.49	2.61	2.59	2.56	2.49	3.33

Horizontal Alignment	L =13.90	L =1.30	L =24.20	L =3.00	L =15.40	L =3.00	L = 2.00	L = 2.00	L =6.00	L =3.00	L =10.40	L =2.84	L =9.

SECTION C-C



Cumulative Distance	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00	160.00	170.00 / 170.32
Natural Ground Level	2.56	2.49	3.33	4.27	5.23	5.29	5.35	5.29	5.91	6.21	6.52 / 6.53

Horizontal Alignment	L =6.00	L =3.00	L =10.40	L =2.84	L =9.00	L =3.74	L =9.94	L =0.61	L =35.96	L =9.01	L =15.00

LEGEND:

Green : Phase I
Red : Phase II

NOTES:

1. The backfilling with engineering fills (0/406.4mm and/or 0/127mm, refer to Notes in drawings) shall uniformly be done around the structures and between the elevations +2.00 and +4.50 (finishing ground level to be slightly graded), knowing that the Manmade Fill and underlying Gravely very Silty fine SAND (seabed sediments) below the elevation +2.00 will be densified/treated by Deep Dynamic Compaction.

2. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

   - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the Engineer. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/2 inches in diameter.
   - Topsoil must be free of noxious plants or plant parts.
   - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the Engineer, may be used in lieu of natural topsoil.

3. The Ground Covering Gravel Size Number 3 shall be according to ASTM C33, and shall be placed in tamped layers of 15cm thick with respect to its maximum and median grain-sizes of 63mm and 37.5mm, respectively.

   The Ground Covering Gravel Size Number 3 (25mm to 50mm in grain-size) shall be strong (Uniaxial-CS >= 50MPa), sound and durable (Slake Durability Index > 90% and description of fragments after test shall be Type I according to ASTM D 4644) limestone (not sandy and/or marly).

   The Ground Covering Gravel Size Number 3 shall be tested as follows, and shall be approved by the Engineer.

   - CaCO3,
   - Clay Lumps and Friable Particles,
   - Flakiness and Elongation Index,
   - Specific Gravity (Saturated Surface Dry) and Water Absorption,
   - LA (500 revolutions),
   - Soundness,
   - Slake Durability, and
   - Compressive Strength and/or PLI.

4. The height of the buildings and tanks shall be subject to the regulation set by the General Directorate of Urban Planning and Beirut Airport Authorities; the height envelope as per current regulation is shown on the tender drawings. Upon the award of the contract, the contractor must verify any update of the regulation and implement it in his design.

LEBANESE REPUBLIC COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH NAZIH TALEB & PARTNERS Founded 1956
ARTELIA

New WWTP Site

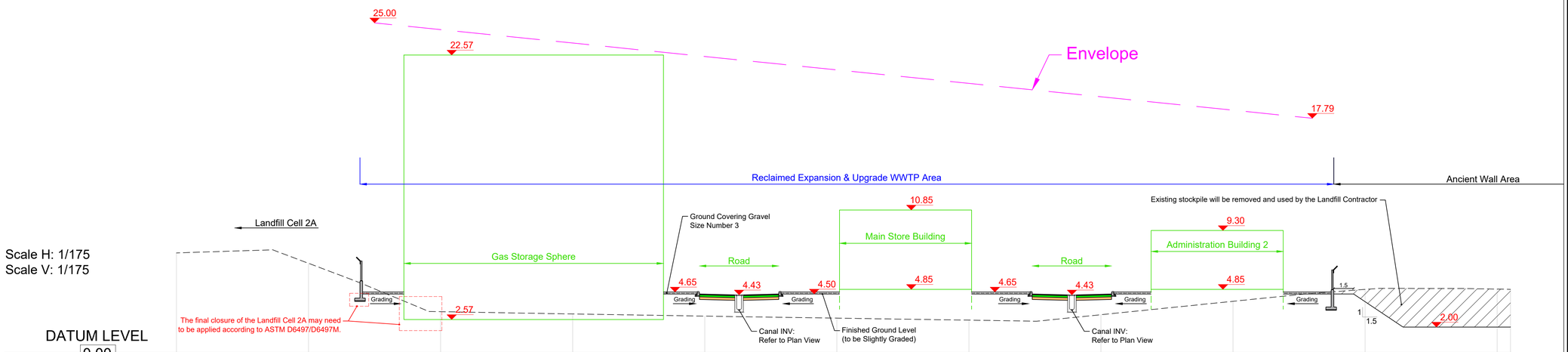
Phase 1 Section C-C

DRAWN : H.I
CHECKED : S.H
APPROVED : F.L
DATE : 05 March 2025
SCALE : 1:150
FILE NAME NTP-P1Sc-06

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1Sc	06	0

A1 Size

SECTION B-B



DATUM LEVEL 0.00

Cumulative Distance	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	101.01
Natural Ground Level	7.61	6.82	3.16	2.99	2.83	2.68	2.52	2.94	3.95	4.85	4.87	4.85

Horizontal Alignment												
L =13.90	L =3.32	L =19.65	L =2.72	L =6.00	L =4.60	L =10.00	L =4.60	L =6.00	L =3.00	L =10.00	L =3.82	L =13.38

LEGEND:

Green : Phase I

Red : Phase II

NOTES:

1. The backfilling with engineering fills (0/406.4mm and/or 0/127mm, refer to Notes in drawings) shall uniformly be done around the structures and between the elevations +2.00 and +4.50 (finishing ground level to be slightly graded), knowing that the Manmade Fill and underlying Gravely very Silty fine SAND (seabed sediments) below the elevation +2.00 will be densified/treated by Deep Dynamic Compaction.

2. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

   - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the Engineer. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/2 inches in diameter.
   - Topsoil must be free of noxious plants or plant parts.
   - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the Engineer, may be used in lieu of natural topsoil.

3. The Ground Covering Gravel Size Number 3 shall be according to ASTM C33, and shall be placed in tamped layers of 15cm thick with respect to its maximum and median grain-sizes of 63mm and 37.5mm, respectively.

   The Ground Covering Gravel Size Number 3 (25mm to 50mm in grain-size) shall be strong (Uniaxial-CS >= 50MPa), sound and durable (Slake Durability Index > 90% and description of fragments after test shall be Type I according to ASTM D 4644) limestone (not sandy and/or marly).

   The Ground Covering Gravel Size Number 3 shall be tested as follows, and shall be approved by the Engineer.

   - CaCO3,
   - Clay Lumps and Friable Particles,
   - Flakiness and Elongation Index,
   - Specific Gravity (Saturated Surface Dry) and Water Absorption,
   - LA (500 revolutions),
   - Soundness,
   - Slake Durability, and
   - Compressive Strength and/or PLI.

4. The height of the buildings and tanks shall be subject to the regulation set by the General Directorate of Urban Planning and Beirut Airport Authorities; the height envelope as per current regulation is shown on the tender drawings. Upon the award of the contract, the contractor must verify any update of the regulation and implement it in his design.

LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH NAZIH TALEB & PARTNERS Founded 1956

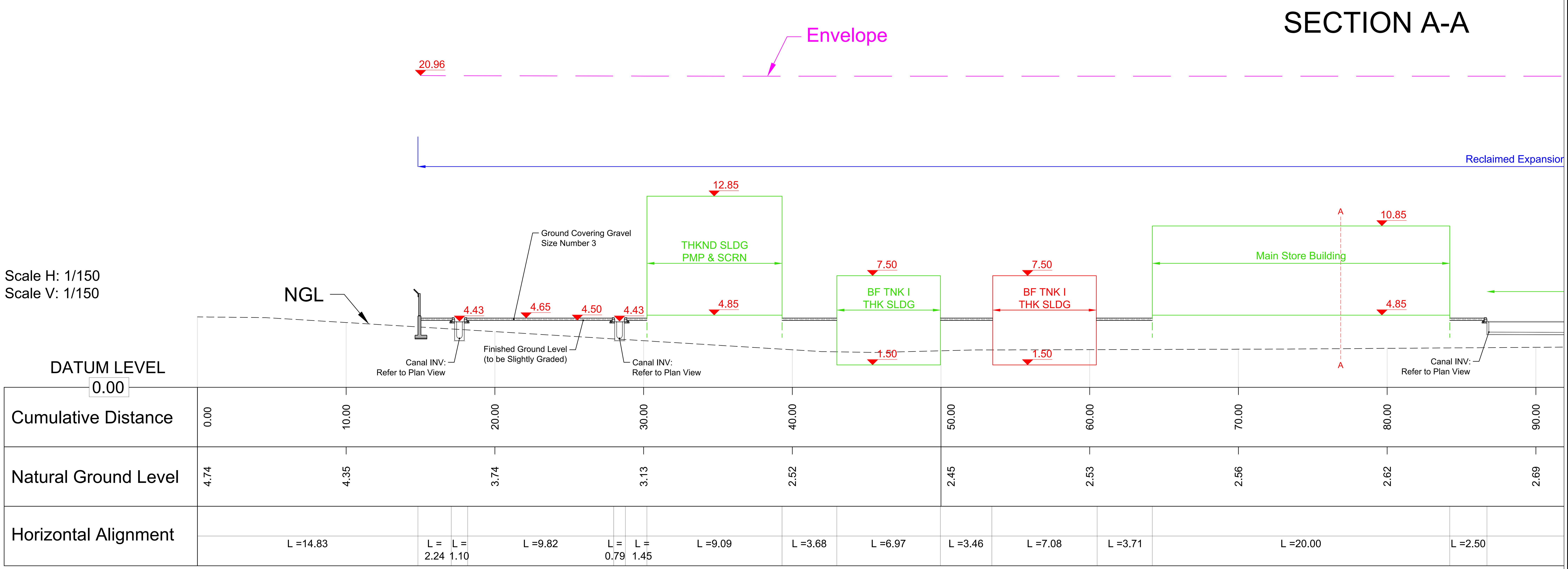
ARTELIA

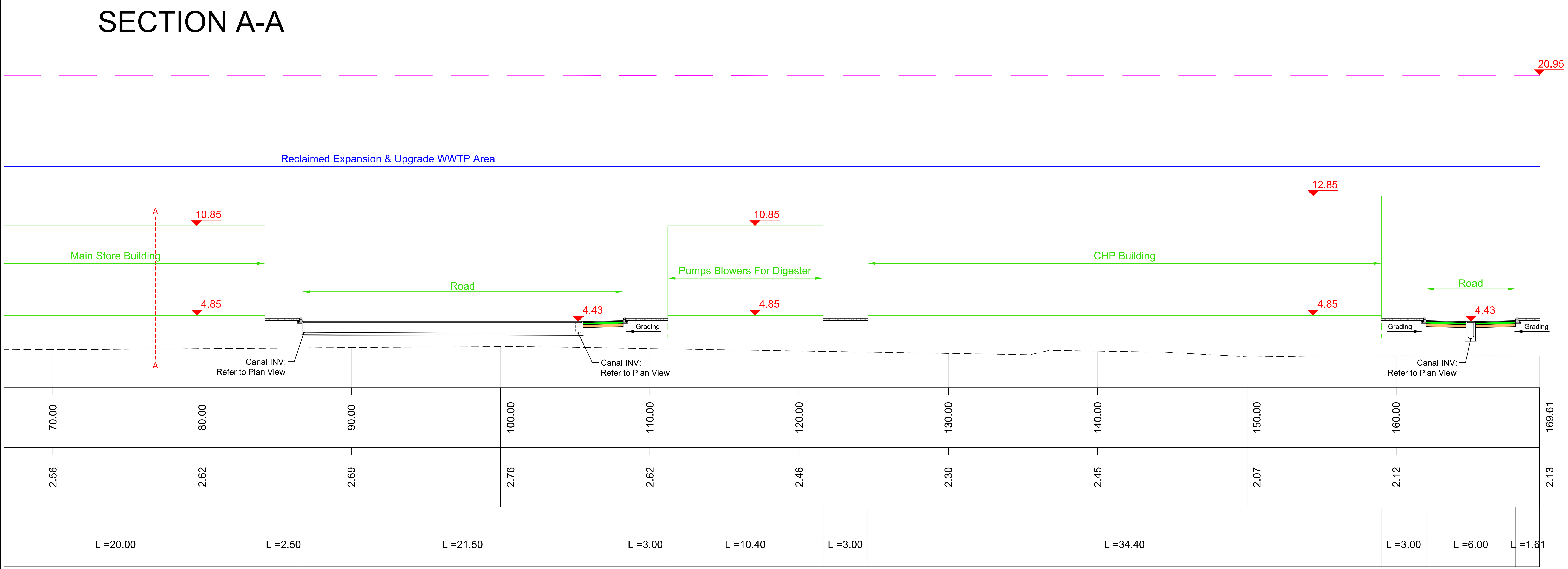
New WWTP Site

Phase 1 Section B-B

DRAWN :	H.
CHECKED :	S.H
APPROVED :	F.L
DATE :	05 March 2025
SCALE :	1:175
FILE NAME	NTP-P1Sb-05

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1Sb	05	0





LEGEND:

Green : Phase I

Red : Phase II

NOTES:

1. The backfilling with engineering fills (0/406.4mm and/or 0/127mm, refer to Notes in drawings) shall uniformly be done around the structures and between the elevations +2.00 and +4.50 (finishing ground level to be slightly graded), knowing that the Manmade Fill and underlying Gravely very Silty fine SAND (seabed sediments) below the elevation +2.00 will be densified/treated by Deep Dynamic Compaction.

2. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   - Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the Engineer. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/2 inches in diameter.
   - Topsoil must be free of noxious plants or plant parts.
   - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the Engineer, may be used in lieu of natural topsoil.

3. The Ground Covering Gravel Size Number 3 shall be according to ASTM C33, and shall be placed in tamped layers of 15cm thick with respect to its maximum and median grain-sizes of 63mm and 37.5mm, respectively.

   The Ground Covering Gravel Size Number 3 (25mm to 50mm in grain-size) shall be strong (Uniaxial-CS >= 50MPa), sound and durable (Slake Durability Index > 90% and description of fragments after test shall be Type I according to ASTM D 4644) limestone (not sandy and/or marly).

   The Ground Covering Gravel Size Number 3 shall be tested as follows, and shall be approved by the Engineer.
   - CaCO3,
   - Clay Lumps and Friable Particles,
   - Flakiness and Elongation Index,
   - Specific Gravity (Saturated Surface Dry) and Water Absorption,
   - LA (500 revolutions),
   - Soundness,
   - Slake Durability, and
   - Compressive Strength and/or PLI.

4. The height of the buildings and tanks shall be subject to the regulation set by the General Directorate of Urban Planning and Beirut Airport Authorities; the height envelope as per current regulation is shown on the tender drawings. Upon the award of the contract, the contractor must verify any update of the regulation and implement it in his design.

LEBANESE REPUBLIC COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

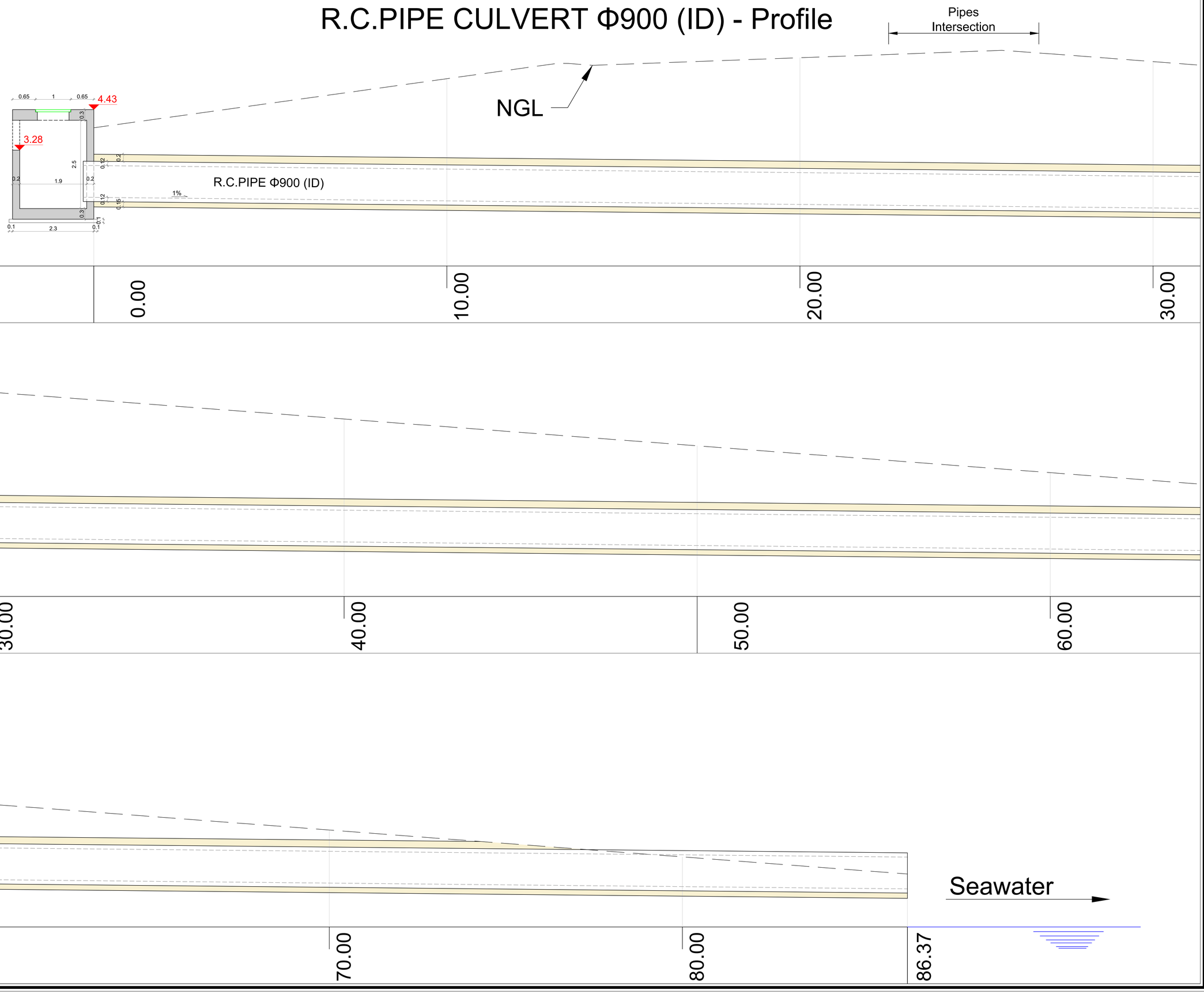
DAR AL HANDASAH NAZIH TALEB & PARTNERS Founded 1956

ARTELIA

New WWTP Site			DRAWN :	H.I
			CHECKED :	S.H
			APPROVED :	F.L
			DATE :	05 March 2025
Phase 1 Section A-A			SCALE :	1:150
			FILE NAME	
			NTP-P1Sa-04	
PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1Sa	04	0

A1 Size

R.C.PIPE CULVERT Φ900 (ID) - Profile



LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

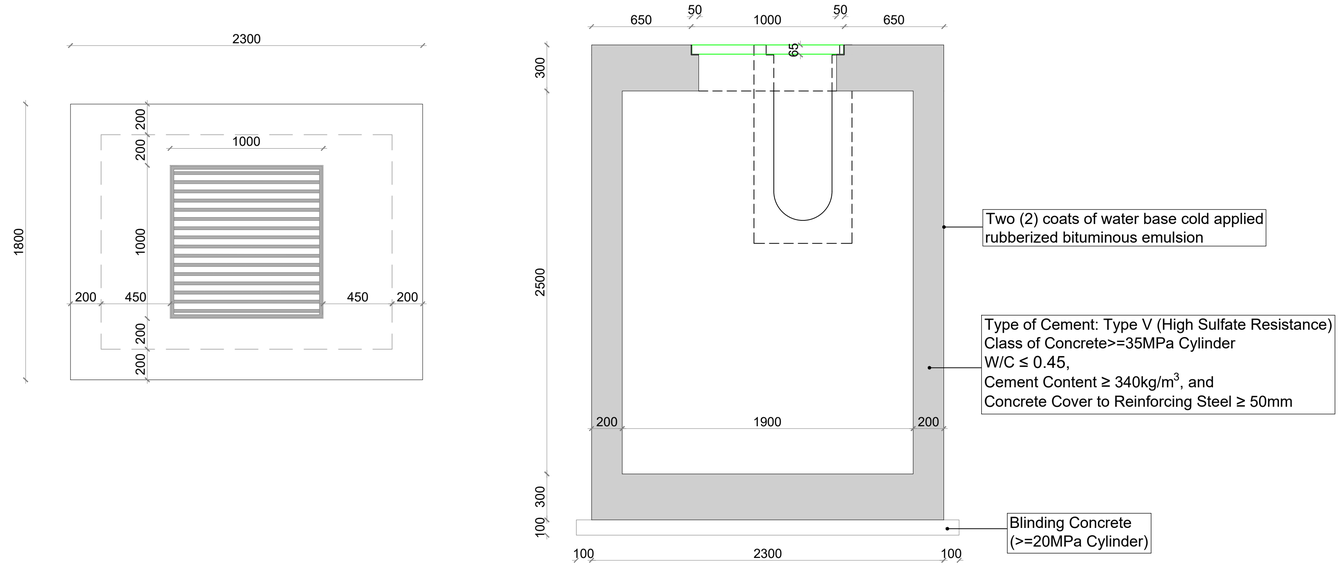
DAR AL HANDASAH
NAZIH TALEB & PARTNERS
Founded 1956

ARTELIA

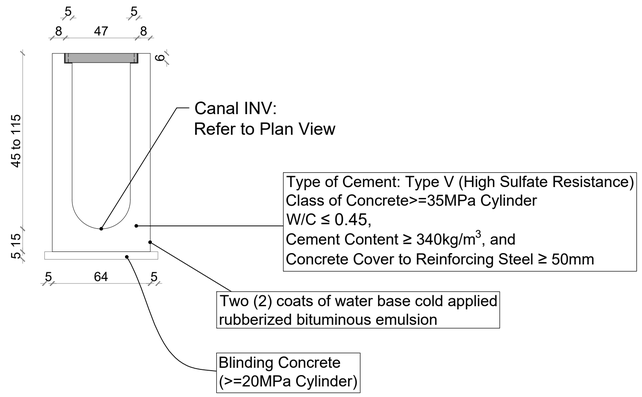
New WWTP Site	DRAWN : H.I
	CHECKED : S.H
	APPROVED : F.L
	DATE : 05 March 2025
	SCALE : 1:50
Phase 1 **R.C.Pipe Culvert Φ900 (ID)**	FILE NAME NTP-P1RCPC-08

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	P1RCPC	08	0

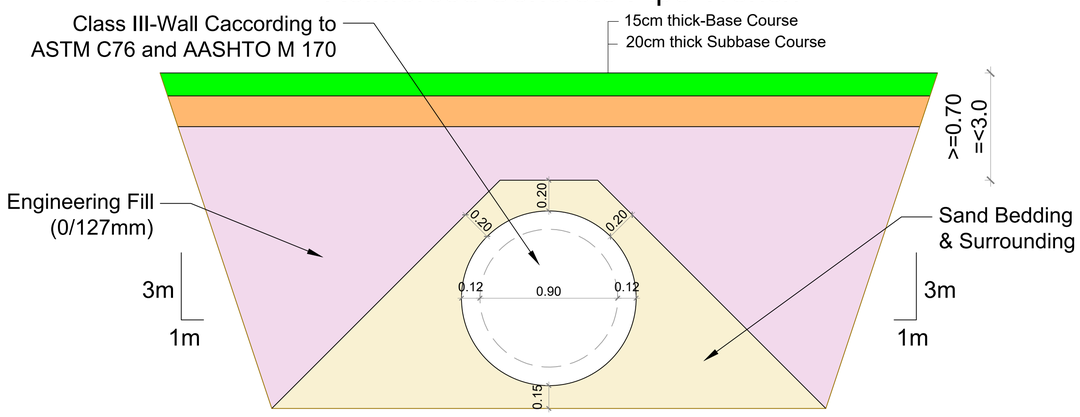
Reinforced Concrete Drop Manhole



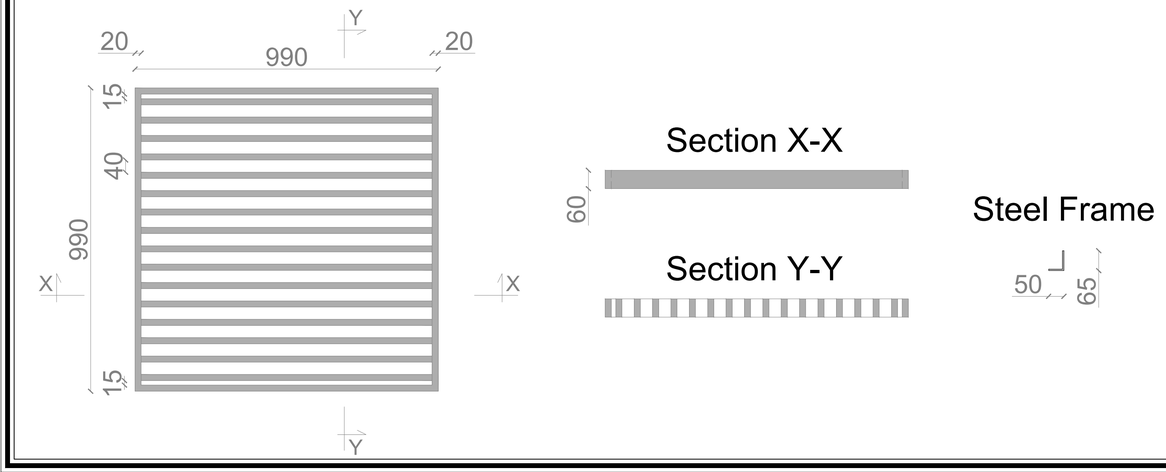
Reinforced Concrete Water Canal with Heavy Duty Grating



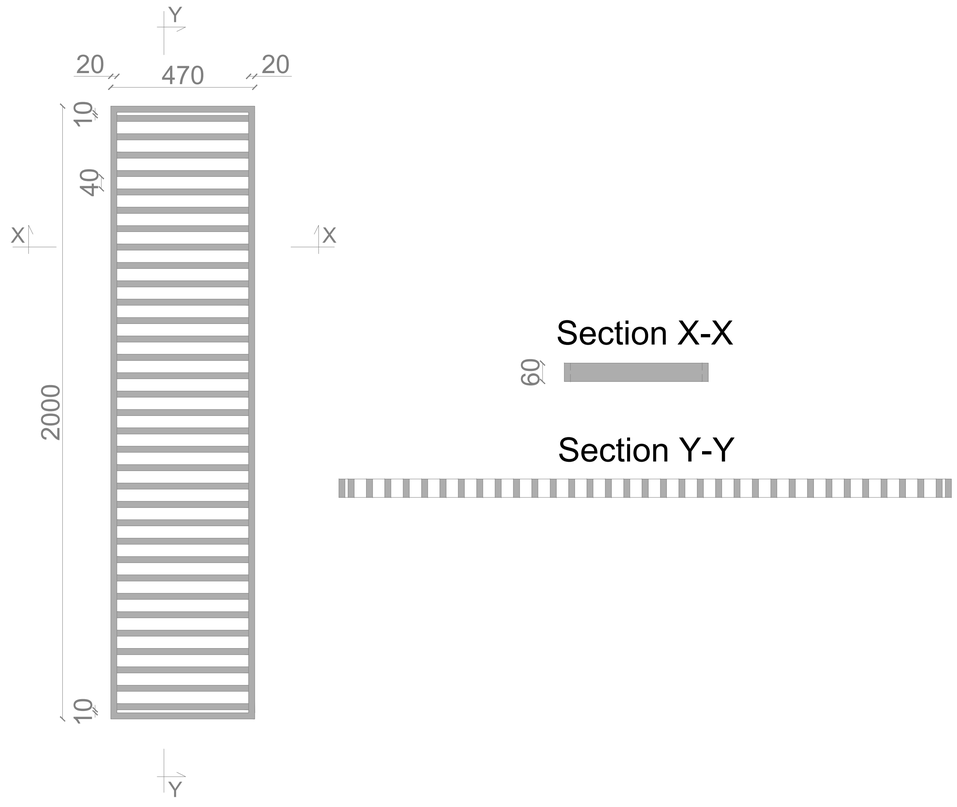
Reinforced Concrete Pipe Trench



Heavy Duty Grating for AASHTO H-20 Truck Traffic 99 x 99cm
(Yield Strength of not less than 500 N/mm2)
Anti-corrosive bituminous painting conforms to BS 3416 / 1991 Type-II



Heavy Duty Grating for AASHTO H-20 Truck Traffic 47 x 200cm
(Yield Strength of not less than 500 N/mm2)
Anti-corrosive bituminous painting conforms to BS 3416 / 1991 Type-II



LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH
NAZIH TALEB & PARTNERS
Founded 1956

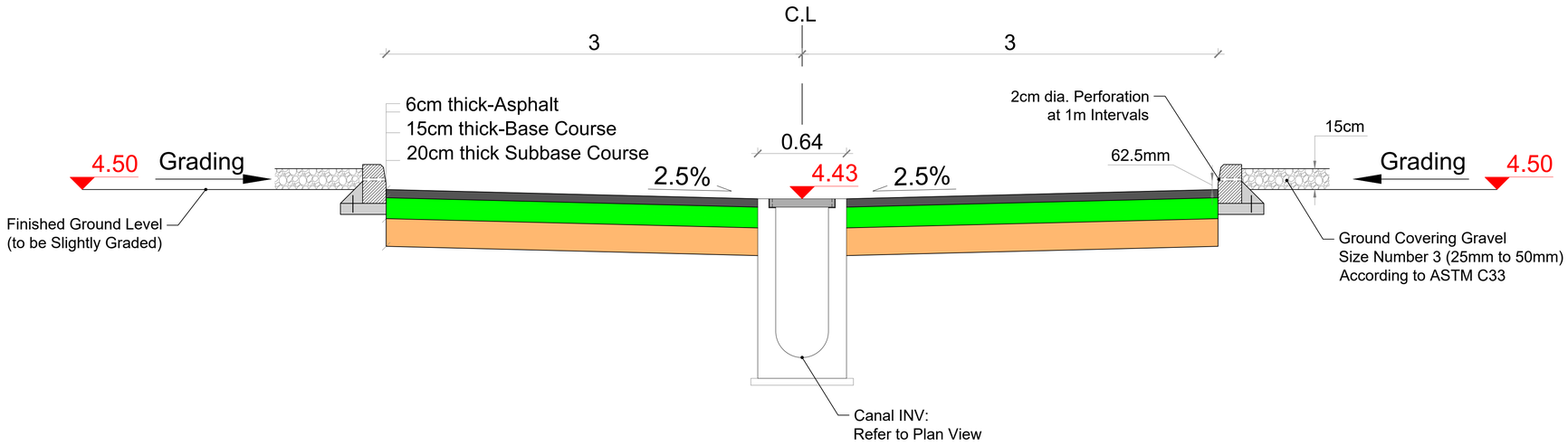
ARTELIA

New WWTP Site

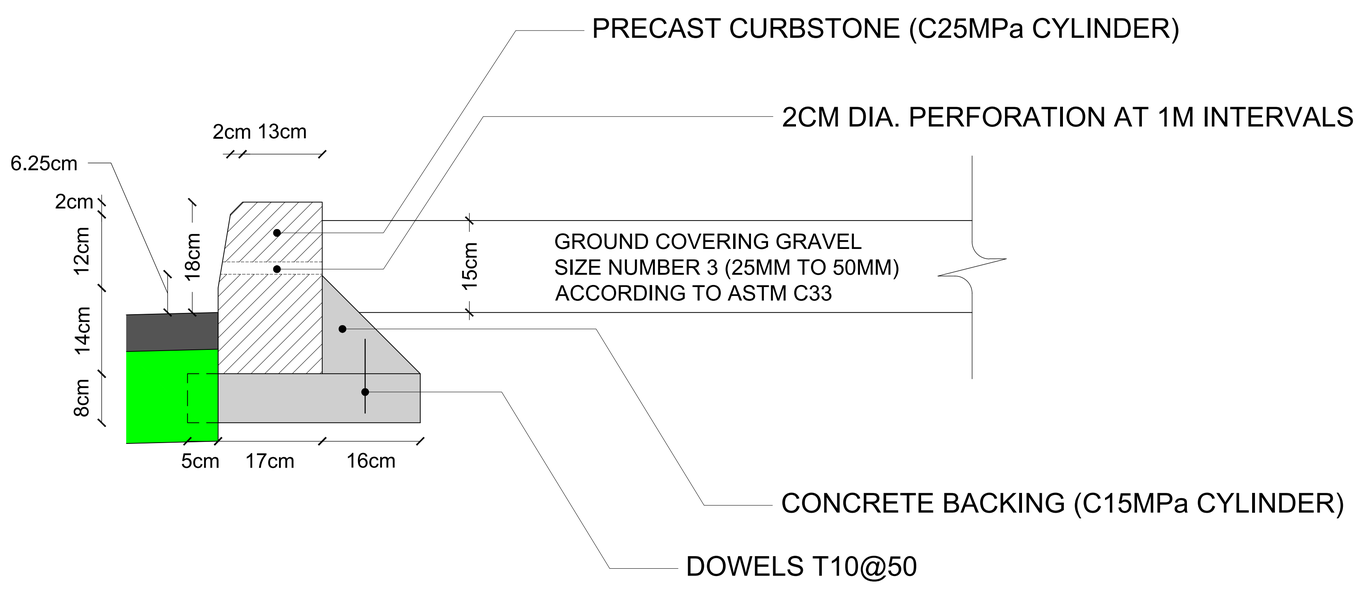
Drainage & Grading Typical Details

DRAWN :	H.I
CHECKED :	S.H
APPROVED :	F.L
DATE :	05 March 2025
SCALE :	1:20; 1:10
FILE NAME	NTP-DGTD-09

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	DGTD	09	0



Precast Curbstone & Ground Covering Gravel



LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

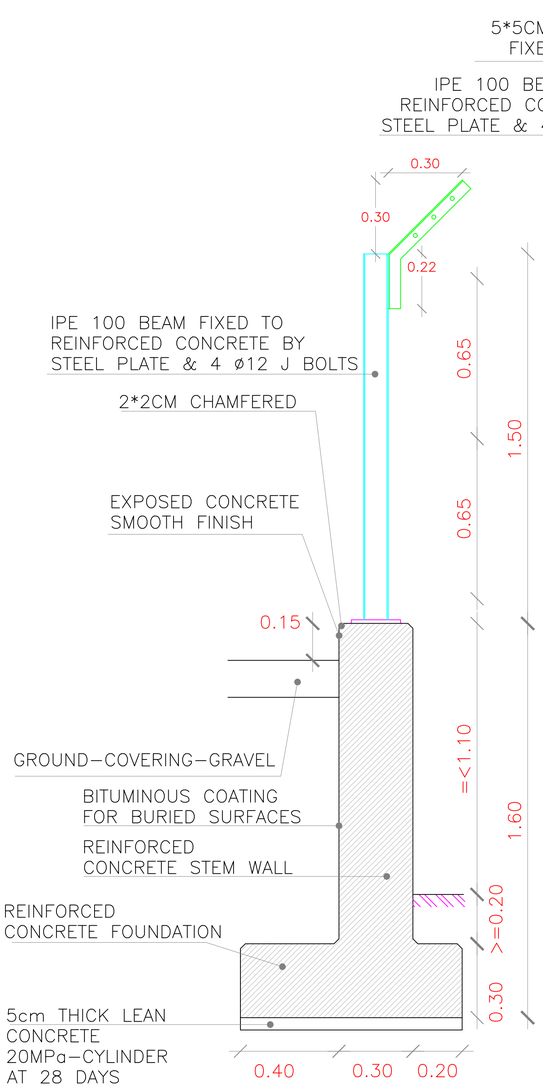
Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH
NAZIH TALEB & PARTNERS
Founded 1956

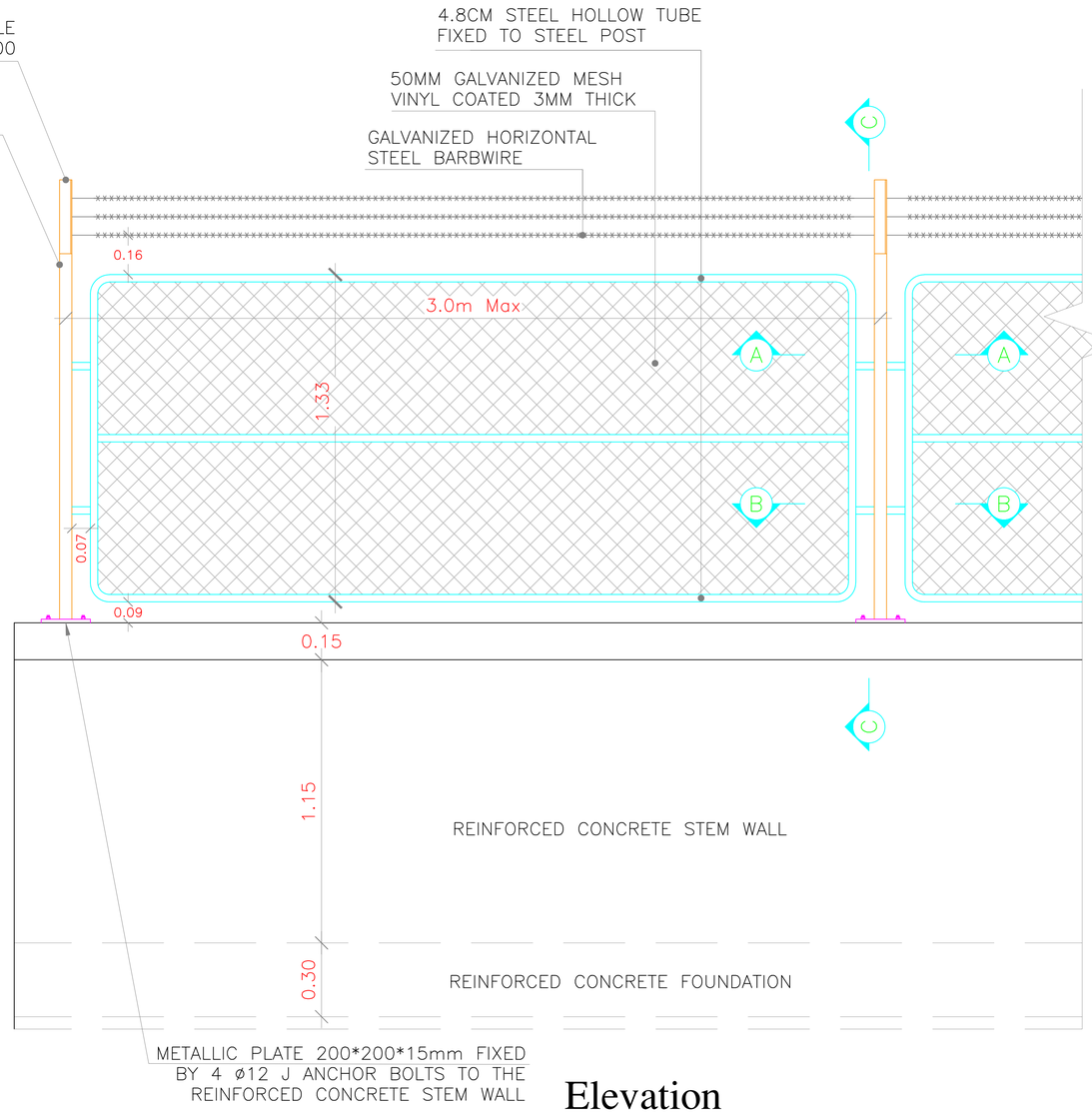
ARTELIA

New WWTP Site	DRAWN : H.I
	CHECKED : S.H
	APPROVED : F.L
	DATE : 05 March 2025
	SCALE : 1:20; 1:50
Internal Road Typical Details	FILE NAME
	NTP-RTD-10

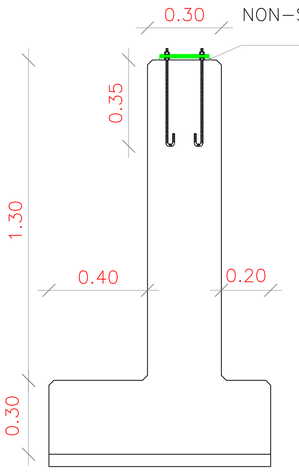
PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	RTD	10	0



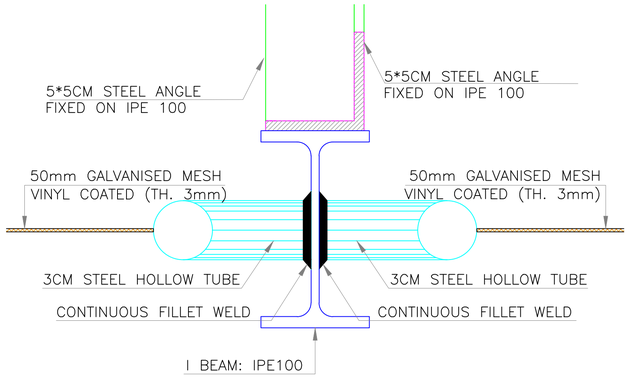
Section C-C



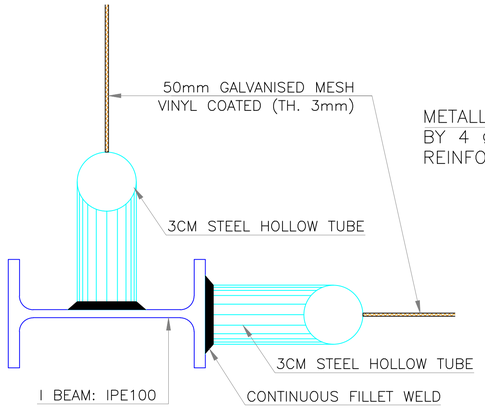
Elevation



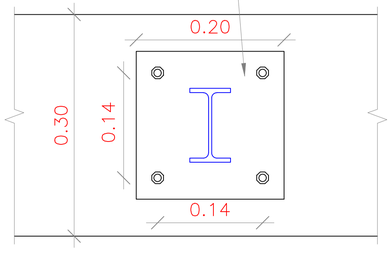
Foundation Details



Section A-A



Column At Corner



Section B-B

NOTES:

- All Exposed Bolts, Nuts and Washers to be made of Stainless Steel (SS316).
- All Steel Elements are Painted Steel.
- The weld size is 0.7t where t is the smallest thickness between the two welded elements, with a minimum value of 3mm.
- An expansion joint (Minimum 3 cm) shall be provided in reinforced concrete structures each 20m Maximum. Detail to be submitted for approval in shop drawings.
- All the welded parts to be covered with anti-corrosion coating.(to be submitted for approval).
- The diameter of a hole in a steel plate for a bolt that is more than 10mm in diameter should be 3mm larger than the diameter of the bolt. The diameter of a hole in a steel plate for a bolt that is 10mm or less in diameter should be 2mm larger than the diameter of the bolt.
- All vertical steel posts, horizontal and inclined tubes shall be grooved/trimmed and jointed/welded to each other. No flatten by hammering/ pressing the steel tubes is allowed for welding purposes.
- Contractor to submit for the consultant approval installation method statement for the fence and gate, detailed shop drawing for the steel fence and gate along with material submittals for all fence and gate's accessories (tubes, braces, locks, hinges, drop rods, wire mesh type and tying method to the fence steel elements, paints, etc.), and welding procedure of the fence prior to installation and welding.
- Type of Cement: Type V (High Sulfate Resistance) Class of Concrete>=35MPa Cylinder W/C ≤ 0.45, Cement Content ≥ 340kg/m³, and Concrete Cover to Reinforcing Steel ≥ 50mm.
- The reinforced concrete structures shall be provided with construction and expansion joints, detailed drawings (including Backing Rod according to ASTM D5249, bituminous type joint filler/board and putty according to AASHTO M33/ASTM D994) shall be provided by the Contractor for the approval of the Engineer.
- All Dimensions are in Meters, Unless Otherwise Indicated

LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH NAZIH TALEB & PARTNERS Founded 1956

ARTELIA

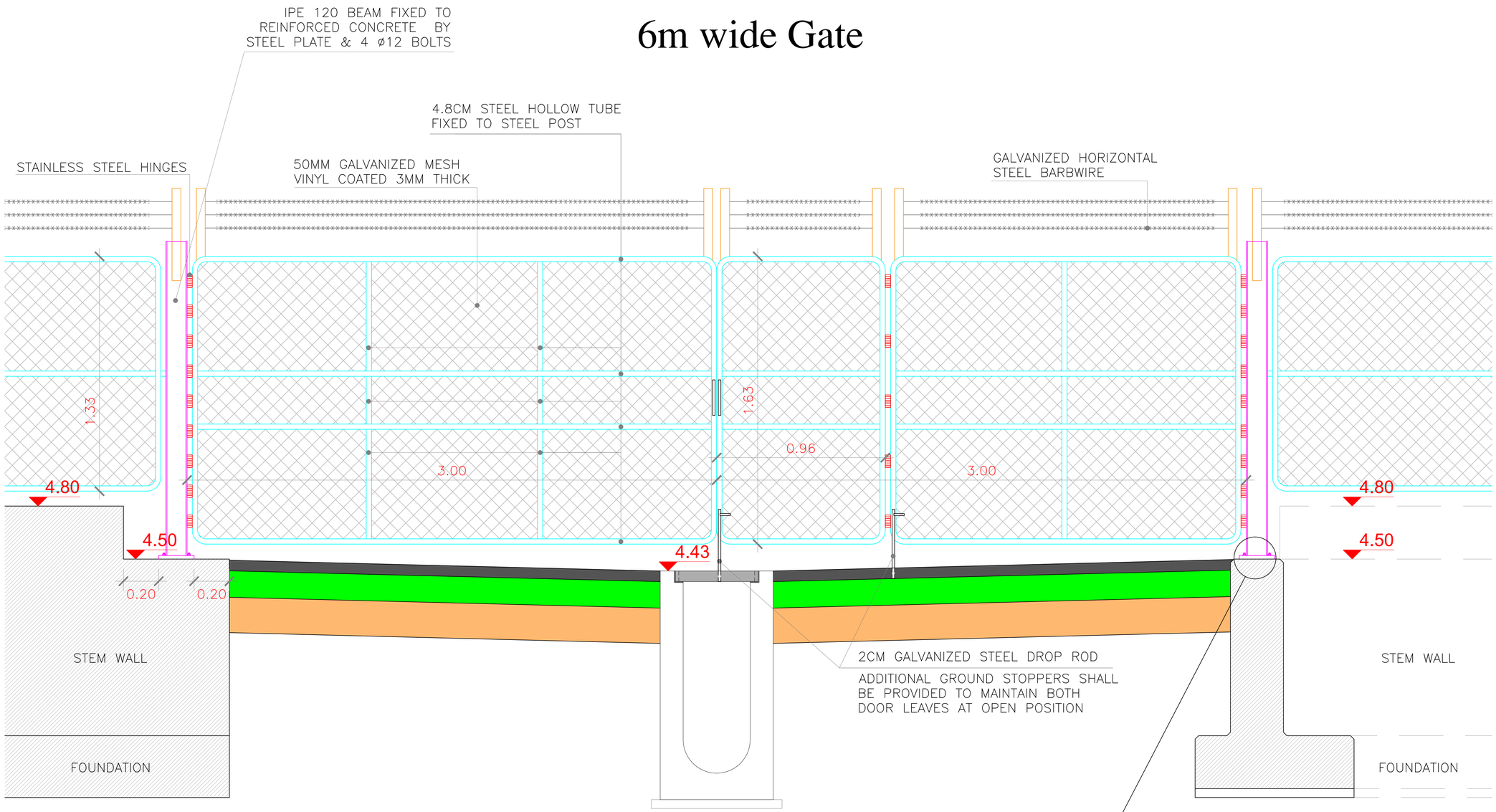
New WWTP Site

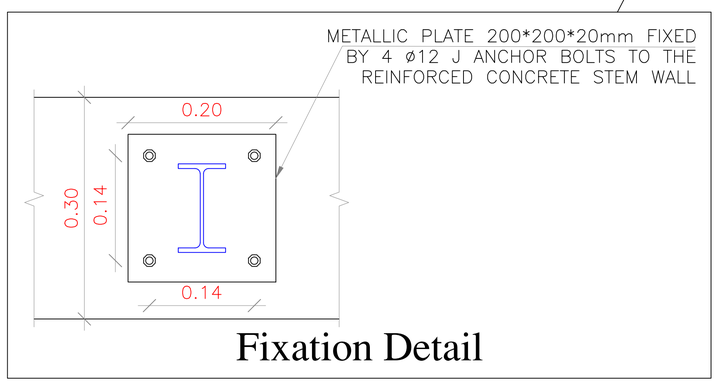
Fence Wall Details

DRAWN :	H.
CHECKED :	S.H
APPROVED :	F.L
DATE :	05 March 2025
SCALE :	N.T.S
FILE NAME	NTP–FWD–11

PROJECT	DIVISION	SUB–DIVISION	SHEET	REVISION
L2401DS	NTP	FWD	11	0

6m wide Gate





Fixation Detail

NOTES:

- All Exposed Bolts, Nuts and Washers to be made of Stainless Steel (SS316).
- All Steel Elements are Painted Steel.
- The weld size is 0.7t where t is the smallest thickness between the two welded elements, with a minimum value of 3mm.
- An expansion joint (Minimum 3 cm) shall be provided in reinforced concrete structures each 20m Maximum. Detail to be submitted for approval in shop drawings.
- All the welded parts to be covered with anti-corrosion coating.(to be submitted for approval).
- The diameter of a hole in a steel plate for a bolt that is more than 10mm in diameter should be 3mm larger than the diameter of the bolt. The diameter of a hole in a steel plate for a bolt that is 10mm or less in diameter should be 2mm larger than the diameter of the bolt.
- All vertical steel posts, horizontal and inclined tubes shall be grooved/trimmed and jointed/welded to each other. No flatten by hammering/ pressing the steel tubes is allowed for welding purposes.
- Contractor to submit for the consultant approval installation method statement for the fence and gate, detailed shop drawing for the steel fence and gate along with material submittals for all fence and gate's accessories (tubes, braces, locks, hinges, drop rods, wire mesh type and tying method to the fence steel elements, paints, etc.), and welding procedure of the fence prior to installation and welding.
- The lock for the steel gate to be appropriate for outdoor usage.
- The final ramp details below the steel gate shall be submitted in shop drawings and to be reveiewed and approved by the Engineer.
- All Dimensions are in Meters, Unless Otherwise Indicated

LEBANESE REPUBLIC
COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

Expansion and Upgrade of Al-Ghadir Wastewater Treatment Plant Project – Phase I: Design, Build and Operate, Including Sea Outfalls

DAR AL HANDASAH
NAZIH TALEB & PARTNERS
Founded 1956

ARTELIA

New WWTP Site

Gate Details

DRAWN :	H.J
CHECKED :	S.H
APPROVED :	F.L
DATE :	05 March 2025
SCALE :	N.T.S
FILE NAME	NTP-SGD-12

PROJECT	DIVISION	SUB-DIVISION	SHEET	REVISION
L2401DS	NTP	SGD	12	0